

Guidelines for Controlling Moss in Greens

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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 has 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-emergent, 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 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. 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 100 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 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 application 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 not 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**,
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USGA Green Section Research Summaries Released

United States Golf Assn.

FAR HILLS, N.J. — The United States Golf Association announces the release of the 1991 Turfgrass Research Summary and the 1991 Environmental Research Summary.

The USGA Green Section and the Golf Course Superintendents Association of America (GCSAA) teamed up in 1983 to fund a ten-year turfgrass research effort that would reduce water use, pesticide use, and maintenance costs by a significant amount. The 1991 Turfgrass Research Summary reports on the important progress made in 1991 by sponsored project investigators.

The 1991 Environmental Research Summary presents first-year progress on the 20 projects funded in this \$3.2 million, 3-year study of the effects of golf courses on the environment. The research program includes investigations pertaining to: 1) the fate of pesticides and fertilizers applied to golf courses; 2) the development of alternatives to the use of chemical pesticides for control of certain golf course pests; and 3) the impacts and benefits of golf courses on people and wildlife.

The two Research Summaries are available from the USGA Order Department at 800/336-4446.