Best Management Practices for Anthracnose Disease on Annual Bluegrass Putting Green Turf

James A. Murphy, Bruce B. Clarke, Chas Schmid, James Hempfling, and Ruying Wang

Department of Plant Biology and Pathology, Rutgers University

Nitrogen

- Apply nitrogen to maintain vigor of the putting green turf without overfertilizing.
- Granular-N fertilization at rates of 1 to 2 lb per 1000-ft² should be emphasized in the spring (rather than autumn) to reduce disease severity. Nitrogen rates up to 3.0 lbs per 1,000-ft² in the spring are effective at suppressing the disease but are only recommended if the historical disease pressure has been severe. At higher rates, include slow release nitrogen as part of the fertilizer to extend the response and avoid a surge in growth.
- Similarly, begin summer N programs earlier in the year to increase the time to buildup nitrogen in the turf, which will decrease anthracnose severity. During the summer, a cumulative soluble-N rate in the range of 1.5 to 3.0 lbs of N per 1000 ft² should be applied to reduce anthracnose severity. A program using a higher rate over summer will likely need less nitrogen applied in the spring; however, a higher spring rate is recommended if anthracnose is historically a problem during mid to late spring.

Topdressing

- Weekly or bi-weekly sand topdressing with 1 or 2 ft³ per 1,000 ft² (0.3 or 0.6 L ha⁻¹), respectively, provides a protective layer of sand around the crown which slightly raises the effective height of cut thus reducing anthracnose.
- Anthracnose is not affected by sand incorporation techniques, so methods which best incorporate sand yet minimize turf injury and wear on mowing equipment should be selected.
• Foot traffic on turf topdressed with sand does not increase disease severity; in fact, it reduces the severity! Benefits of sand topdressing will be seen through better wear tolerance and decreased disease in areas that receive daily foot traffic and sand topdressing.

• Implement an aggressive topdressing program (e.g., 4-8 ft³ per 1,000-ft²) during the spring especially if topdressing during the summer, as mentioned above, is not feasible. Spring topdressing is more effective at reducing anthracnose severity than topdressing applied in the fall.

Irrigation

• Increased anthracnose can result when annual bluegrass is consistently subjected to wilt stress or excessively wet conditions.

• Irrigating to replace 60 – 80% of potential evapotranspiration and hand watering as needed to avoid wilt stress will provide quality playing conditions and reduce conditions favorable for anthracnose.

Mowing and Rolling

• Mowing below 0.125 in (3.2-mm) should be avoided whenever possible. If feasible, raise the cutting height as high as 0.141 in (3.6-mm) for greater suppression of anthracnose. Slight increases in mowing height can significantly reduce the severity of this disease.

• To maintain acceptable ball roll distances (~10 ft) at higher mowing heights, roll and/or increase mowing frequency. Rolling, regardless of roller type, and double-cutting increase ball roll, but will not enhance the disease.

• Rolling every other day may actually cause slight reduction in anthracnose severity.
**Plant Growth Regulators**

- Routine trinexapac-ethyl (Primo MAXX®) use even at high rates and short intervals does not increase anthracnose severity. Benefits of improved turf tolerance to low mowing and enhanced plant health may help reduce disease in some cases.
- Mefluidide (Embark) and ethephon (Proxy) can be used to suppress seedhead formation in ABG turfs without increasing anthracnose.
- Mefluidide or ethephon applied in March or April at label rates with subsequent applications of trinexapac-ethyl at 0.125 fl oz per 1,000 ft$^2$ (0.40 L ha$^{-1}$) every 7- to 14-d or 0.1 fl oz per 1,000 ft$^2$ (0.32 L ha$^{-1}$) every 7-d will provide the best turf quality and may reduce anthracnose.

**Fungicide Management**

- Use best “cultural” management practices to decrease anthracnose severity and potentially reduce fungicide rates and/or extend the interval between applications required for acceptable disease control.
- Avoid sequential use of any fungicide chemistry.
- Tank-mix (or use pre-mixed products) and alternate fungicide chemistries with different modes of action to enhance efficacy and reduce the potential for fungicide resistance.
- Develop fungicide programs that focus on the strengths of anthracnose fungicides; time their application during the growing season so that they also control other major diseases that historically occur on your golf course.

April 2012 Update

Primo MAXX® is a trademark of a Syngenta Group Company.