Fungicide Alternatives: Final Report Summary

Clint Mattox, Alec Kowalewski, and Brian McDonald
Oregon State University

Fungicide Alternatives for the Management of Microdochium Patch:

Previous trials indicated promising results for the control of Microdochium patch on *Poa annua* putting greens using daily rolling, the mineral oil Civitas One, sulfur, phosphorous acid and iron sulfate. However, turfgrass damage has been observed with frequent high rates of iron sulfate, sulfur, and Civitas One particularly when combined with rolling. Regarding these concerns, from fall 2015 to spring 2017 a series of new trials were initiated to explore methods for alleviating damage caused by these fungicide alternative methods while maintaining adequate Microdochium patch management. Findings from these trials determined the following…

- To prevent damage, avoid applying mineral oil with sulfur, regardless of the rate, in the winter months (December, January, and February) (Image 1).
- Mineral oil applied with phosphorous acid will mitigate damage and provide disease control although minimal abiotic damage may be observed in the winter months (December, January, and February) (Image 1) .
- Phosphorous acid applied with sulfur will provide adequate disease suppression without abiotic damage to the turfgrass.
- Phosphorous acid applied in combination with sulfur in a two week rotation with phosphorous acid in combination with Civitas One provided acceptable disease suppression and turfgrass quality in two years of trials in Corvallis, OR.
- When applying iron sulfate, high water carrier volumes will decrease turf blackening and applications at 2 lbs per 1,000 sq ft every 2 weeks intervals are required for control without fungicides.
- Phosphorous acid applied with iron sulfate will provide disease control at a reduced rate of iron (Image 2).

Effects of the Wetting Agent Revolution on Anthracnose:

- When disease pressure is high, frequent applications of Revolution at the monthly rate are required to suppress anthracnose (Image 3).
- When diseases pressure is low, lower rates and less frequent applications of Revolution significantly suppress anthracnose.

Image 1: Effects of high rates of Civitas One + Sulfur (left), and Civitas One + PK Plus (middle) compared to the control plot in January 2016.

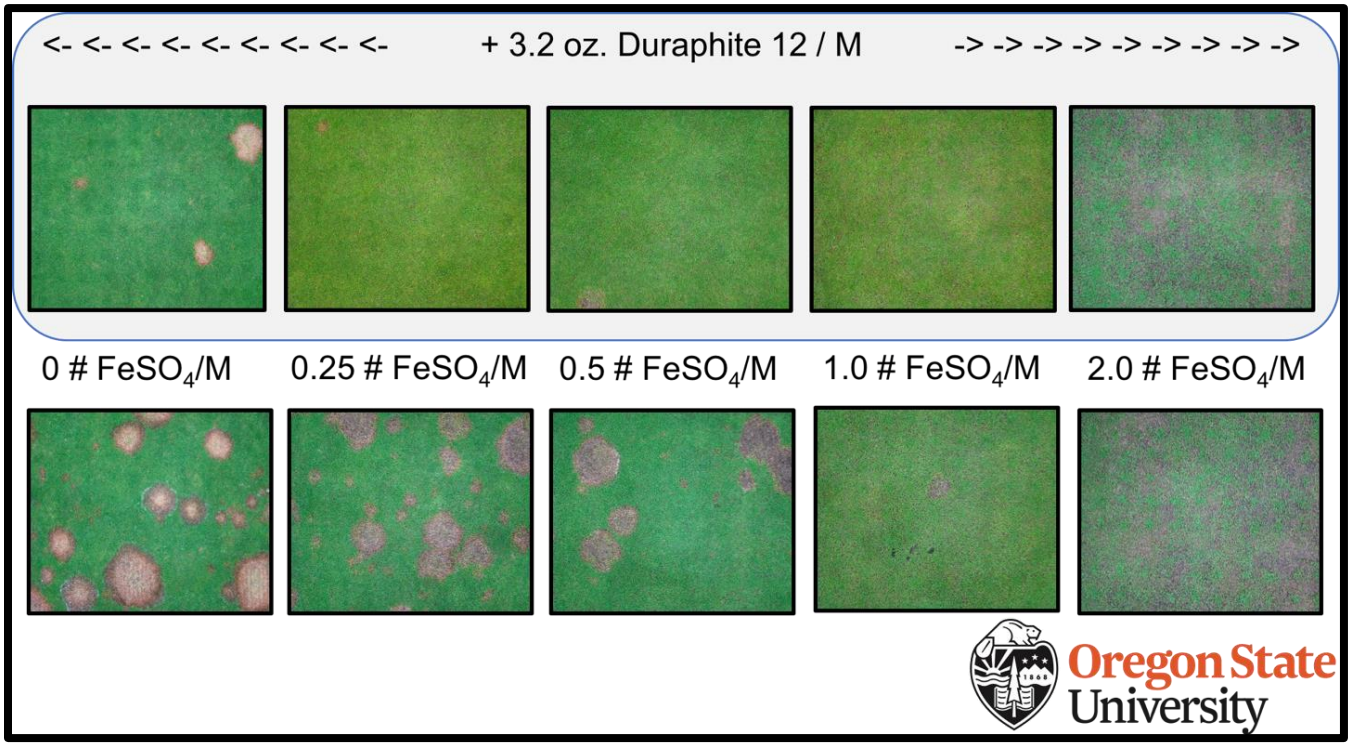

Image 2: Appearance of plots on the 1st of February 2018 affected by treatments of different rates of iron sulfate ($FeSO_4$) applied either in combination with Duraphite 12 at a 3.2 oz./M rate (top row) or in absence of a Duraphite 12 application (bottom row) on the incidence of Microdochium patch on an annual bluegrass putting green in Corvallis, OR. The field trial for year one began on the 29th of September 2016 and year two on the 28th of September 2017 and final data collection for year one was taken on April 30th, 2017 and year two will be the 30th of April 2018.

Image 3: Effects of Revolution applied at 6 oz/1,000 ft^2 twice a week (left), and once every 4-weeks (center), compared to a control (right), which did not receive wetting application treatments, August 24, 2015.