

## SUMMER PATCH OF BLUEGRASSES



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Summer patch caused by *Magnaporthe poae* is a highly destructive disease of *Poa* species and fine-leaved fescues. It is one of the most important causes of summer death of annual bluegrass. Symptoms of the disease first occur in the warm weather as small circular patches of slow-growing, wilted, and thinned turf which enlarge into irregular, yellow to bronze colored patches ranging in size from 6" to 3' in diameter. The patches may coalesce resulting in large areas of blighted turf. As creeping bentgrass is not affected, a "frog-eye" type symptom may result from the surviving bentgrass colonizing patches. Infected roots, crowns, and rhizomes turn dark brown as they die and dark, ectotrophic hyphae can be seen under the microscope. Extensive root and crown rot can develop. Summer patch symptoms are similar to those of necrotic ring spot; the pathogens can be differentiated based on temperature preferences as well as fruiting bodies and spores which are seldom seen in nature.



*M. poae* survives the winter in infected plant debris or perennial hosts and moves from plant to plant by growing along the surface of roots and rhizomes. When soil temperatures warm to 65° F, the pathogen invades root tissue but causes little damage until hot, rainy weather or periods of heavy rainfall or irrigation. The moisture pushes the oxygen out of the soil and weakens the roots of the grass plant, allowing the pathogen to invade the water and food conducting systems (vascular system) of the grass plants. Both water and nutrient uptake is impeded, as well as the movement of photosynthesis products from the foliage to the roots. Summer patch is most serious on sunny, compacted, and poorly drained sites during

hot, wet years. Heat stress plays an important role in the development of disease; once root rot has occurred, drought stress can intensify symptoms. The disease is favored by quick-release fertilizers, nitrate forms of nitrogen, high pH, low mowing heights, and some contact fungicides.

### Management:

Since summer patch is a root disease, management practices that promote root development and reduce stress on the turfgrass are important management tools.

- Avoid low mowing heights, especially during periods of heat stress.
- Maintain adequate fertility as determined by soil tests.
- Fertilize with slow-release forms of nitrogen.
- Apply acidifying fertilizers such as ammonium sulfate in cool, dry weather and immediately irrigate the turf to prevent foliar burn.
- Avoid the use of nitrate fertilizers which can increase the pH.

- Maintain soil pH between 5.5-6.0 to prevent low soil pH problems such as nutrient deficiencies or aluminum toxicity.
- Annually, apply manganese sulfate at a rate of 2 lb/acre in the spring.
- Reduce compaction and improve drainage.
- Syringe turf in the middle of the day to reduce heat stress.
- Reseed affected areas with resistant cultivars, bentgrasses or ryegrasses. For best results, use mixtures or blends of resistant grasses.
- Several commercially available biological control agents (Biofungicides) have shown promising results with Summer Patch. Kodiak, Rhapsody and Serenade Max are formulations of *Bacillus subtilis*, while PlantShield and RootShield are formulations of *Trichoderma harzianum*.

***Chemical recommendations:***

**azoxystrobin (Heritage):** 0.4 oz/1000 sq ft (REI 4h). Apply when conditions are favorable for disease development. Alternate Heritage with a fungicide with a different mode of action to prevent resistance development. Do not alternate with pyraclostrobin (Insignia) .

**fenarimol (Rubigan A.S.):** 2.0 fl oz/1000 sq ft (REI 12 h). Apply preventively in two applications in April and May. Thoroughly irrigate before spray has dried to move into roots/crowns. Repeat in the fall, if necessary.

**fludioxonil (Medallion):** 0.5 oz/1000sq ft (REI 12 h). Apply when conditions are favorable for disease development. For best results, tank mix with 1.0 to 2.0 fl oz of Banner Maxx per 1000 sq ft.

**myclobutanil (Eagle 20EW):** 1.2 to 2.4 fl oz/1000 sq ft. Make preventive applications in early to mid-spring. Make 2-4 applications at 14-28 day intervals. When disease pressure is high or used as a curative treatment, use the higher rate. Ensure penetration to roots and crowns by irrigating turf before spray dries.

**propiconazole (Banner Maxx):** 2 to 4 fl oz/1000 sq ft (REI 24 h). Apply in the early spring. Use the 4 fl oz rate on a 28 day schedule and the 2 fl oz rate on a 14 day schedule.

**pyraclostrobin (Insignia):**0.5 to 0.9 oz/1000 sq ft (REI 4 h). Initiate applications in the spring when soil temperatures reach 65° F. Alternate Insignia with a fungicide with a different mode of action to prevent resistance development. Do not alternate with azoxystrobin (Heritage).

**thiophanate-methyl (Cleary's 3336):** 4 to 8 oz/1000 sq ft (REI 12 h). For prevention, apply 3 applications in late April or early May at 21 day intervals. Tank mixes and/or rotations with other chemicals should make up part of the 3 application program. For suppression, apply at 7-14 day intervals when disease first appears.

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