

Plant Pathology Factsheet

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EFFICACY OF FUNGICIDES FOR CONTROLLING GRAY LEAF SPOT OF PERENNIAL RYEGRASS

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Gray leaf spot caused by *Pyricularia grisea* has emerged in recent years as the most destructive disease of perennial ryegrass throughout much of the range of this turfgrass. While cultivars of perennial ryegrass exhibit slight differences in susceptibility, all currently available cultivars can become severely diseased under high disease pressure. Cultural practices can contribute to disease management, but alone they do not provide adequate control under high disease pressure. Consequently, the judicious use of fungicides is critical for successful management of this disease (Figure 1, 2).

Below are efficacy ratings for various fungicides and fungicidal products for control of gray leaf spot of perennial ryegrass, caused by *Pyricularia grisea*. These efficacy ratings are based on all published reports available to the author from tests nationwide conducted. These ratings are, of course, subject to change as new data become available. Additional information on fungicides and reducing the risk of fungicide resistance is provided, as well. For information on cultural controls for this disease, see <http://www.ca.uky.edu/agc/pubs/ppa/ppa1/ppa1.pdf>



Figure 1. Leaf spotting and blight caused by gray leaf spot



Figure 3. Damage caused by gray leaf spot on a perennial ryegrass fairway in Lexington, KY.

Table 1. Some Fungicidal Materials for Control of Gray Leaf Spot of Perennial Ryegrass

Fungicide	Mobility within Plant	Fungicide Group	Risk of Resistance	Examples of Product Names¹
Azoxystrobin	Systemic	QoI	High	Heritage 50WG
Chlorothalonil	Protectant	Multisite Inhibitor ²	NS ³	Daconil Ultrex
Propiconazole	Systemic	DMI ³	Moderate	Banner MAXX
Thiophanate methyl	Systemic	Benzimidazole	High	Cleary's 3336, Fungo 50WSB
Triadimefon	Systemic	DMI	Moderate	Bayleton 50
Mancozeb	Protectant	Multisite Inhibitor ¹	NS	Fore Rainshield
Trifloxystrobin	Mesostemic ⁴	QoI	High	Compass 50WG

¹Products which are premixes of two active ingredients, such as MANhandle and Spectro 90, are not listed in this table.

²Multisite inhibitors have no significant risk of resistance.

³NS = not significant

³Demethylation-inhibitor, a sterol-inhibitor fungicide.

⁴Enters into plant tissue but does not translocate in vascular tissues.

Table 2. Efficacy Ratings for Fungicides against Gray Leaf Spot

Efficacy Category	Product	Rate	Application interval (days)
Excellent under <i>high</i> disease pressure	Heritage 50WG	0.4 oz	21
	Cleary's 3336 50WP	6-8 oz	14
	Fungo 50WSB	6-8 oz	14
	Fore Rainshield NT 80WP + Daconil Ultrex	8.0 oz 3.2 oz	14

Good under <i>high</i> disease pressure	Compass 50WG	0.2 oz	14
	Heritage 50WG + Daconil Ultrex	0.2 oz 3.2 oz	14
	Banner MAXX + Daconil Ultrex	1.0 fl oz 3.2 oz	14
	Bayleton 50WP + Daconil Ultrex	1.0 oz 3.2 oz	14
	MANhandle 62.25WP	10 oz	14
	Spectro 90 WDG	5.76 oz	14

Good under <i>light to moderate</i> disease pressure	Daconil Ultrex	3.2 oz	7-10
	Banner MAXX	2 fl oz	14
	Bayleton 50	1.0 oz	14
	Fore Rainshield NT	8 oz	14

Practices for Minimizing the Risk of Fungicide Resistance in Gray Leaf Spot

Use of the following practices will reduce—but not eliminate—the risk of resistance to Q₀I fungicides in *Pyricularia grisea*.

- **Minimize disease pressure through cultural practices to the extent possible.** This will reduce the chance of a resistant mutant by reducing the size of the pathogen population. If fertilizing during the period from June through August, foliar feed with no more than 0.1 to 0.25 lb soluble nitrogen/1000 ft² during that period. Schedule irrigations near sunrise and avoid evening irrigation.
- **Minimize consecutive applications of fungicides having a similar mode of action, especially during the period of highest disease pressure.** In fact, since 1998 I have been recommending switching to a different mode of action *each time you spray for gray leaf spot*. This will not prevent the development of resistance. However, it does reduce the risk of resistance, and that is all a turf manager can do.
- **Tank-mix products having different modes of action during periods of high disease pressure.** Chlorothalonil and mancozeb, multi-site inhibitors, are especially good mixing partners from the standpoint of resistance management. There is essentially no risk of resistance to a multi-site inhibitor fungicide. A multi-site inhibitor should be tank-mixed with any systemic fungicide that is used curatively against gray leaf spot. This is because, in a curative situation, you are treating a large population of spores in the turf; the larger the population, the greater the chance that a fungicide-resistant mutant is present. Including the multi-site inhibitor gives you some chance at killing out that mutant before it builds up.
- **Switch from the Q₀I fungicides and thiophanate methyl to other products during periods of low disease pressure, such as at the tail end of the period of gray leaf spot activity.** This reduces the exposure of *P. grisea* to these at-risk fungicides.

Reviewed by John R. Hartman

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