LOUISIANA PLANT PATHOLOGY
DISEASE IDENTIFICATION AND MANAGEMENT SERIES
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# Take-all Root Rot

*Gaeumannomyces graminis* var. *graminis*

Take-all root rot is caused by the soilborne fungus *Gaeumannomyces graminis* var. *graminis* (Ggg), which frequently is found in association with turfgrass roots without causing significant disease. As the name implies, this disease of the roots can be quite destructive. Aboveground symptoms generally are not visible until the root system has already been severely compromised. The appearance of these symptoms generally coincides with periods of several abiotic stresses, especially heat and drought stress.

The initial symptoms of take-all root rot generally are visible as an overall yellowing, thinning or drought-stressed appearance of the turf (Figure 1). Diseased roots are often short, dark-colored and somewhat brittle (Figure 2). The overall density of the root system is also greatly reduced. Affected stolons can be easily pulled out from the lawns. Careful examination of stolons and the base of the leaf sheaths with a good hand lens may reveal the presence of the black strands of fungal mycelium of Ggg on their surfaces (Figure 3). If left untreated, large, irregularly-shaped areas of turf may die (Figure 4). Symptoms caused by the take-all disease easily can be confused with injury caused by chinch bugs.

The management of take-all root rot relies primarily on the use of cultural practices to relieve stresses that trigger the disease and to modify the environment to make it less conducive for the pathogen. These stresses include soil compaction and poor drainage, drought,

*Figure 1. Initial yellowing of turf due to take-all root rot.*

*Figure 2. Root systems of turfgrass affected with take-all root rot.*

improper mowing height, excessive thatch build up and the overuse of herbicides. It also is important to be sure that the soil pH is in the range of 5.5-6.0 and to use slow-release acidifying forms of nitrogen. Because we are actively trying to regrow roots, it is important to mow the grass at recommended heights, provide adequate potassium (potash) and avoid use of root inhibiting herbicides.

None of the fungicides that are readily available to homeowners are particularly effective in controlling this disease once it has become established. However, those containing the active ingredient triadimefon or propiconazole may be beneficial when used as part of an integrated disease management program. Current recommendations are to make two applications in the fall (mid- to late September and again in mid- to late October) and one application in the spring (mid- to late March), being sure to apply at least ¼ inch of water to move the fungicide into the root zone where it is needed to protect roots.

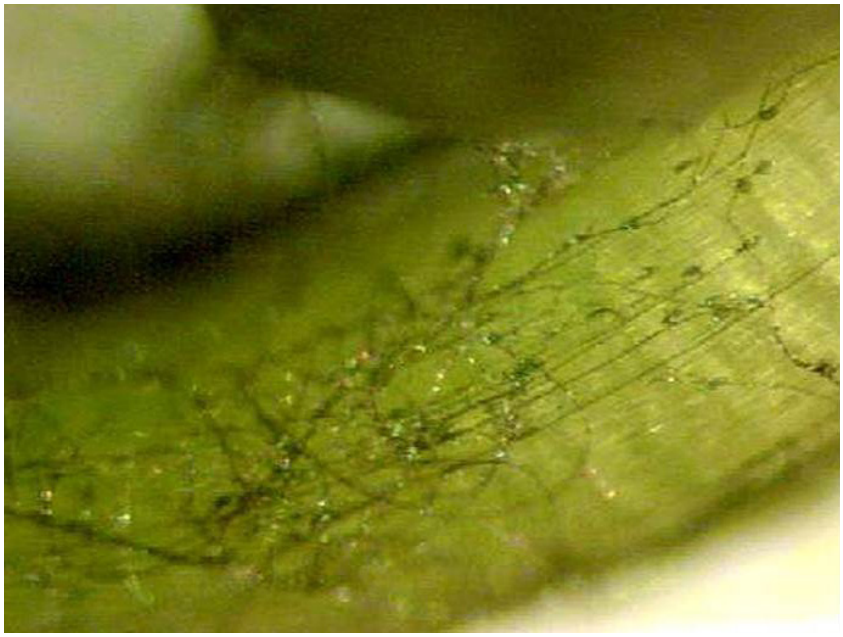

*Figure 3. Presence of black strands of fungal mycelium of Ggg on affected stolons.*

*Figure 4. Large, irregular areas of turfgrass killed by Ggg resulting in bare ground.*

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