

LOUISIANA PLANT PATHOLOGY

DISEASE IDENTIFICATION AND MANAGEMENT SERIES

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Take-all Root Rot of Warm-season Turfgrasses

Gaeumannomyces graminis (Sacc.) Arx & D. Olivier var. *graminis*

Take-all root rot, a severe disease of all warm-season turfgrasses, has become quite prevalent across the Southeast over the past few years. This disease is caused by the soil-borne fungus *Gaeumannomyces graminis* var. *graminis* (Ggg), which is frequently 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 stress, especially heat and drought stress.

The initial symptoms of take-all root rot are generally visible as an overall yellowing, thinning or drought-stressed appearance of the turf (Fig. 1). Diseased roots are often short, dark-colored and somewhat brittle. The overall density of the root system is also greatly reduced (Fig. 2). Careful examination of stolons and the base of the leaf sheaths with a good hand lens may reveal the presence of the black, fungal mycelium of Ggg on their surfaces. If left untreated, large, irregularly-shaped areas of turf may die (Fig. 3).

The management of take-all root rot relies primarily on the use of cultural practices to relieve the stress that triggered the disease and to modify the environment to make it less suitable for the pathogen. The first step is to alleviate the stress or stresses that triggered the disease. These stresses include soil compaction, drought, improper mowing height and the overuse of herbicides. It is also important to be sure that the soil pH is in the range 5.5-6.0 and to use slow-release acidifying forms of nitrogen.



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



Fig. 2. Root systems of healthy (left) and diseased (right) turf.

Because we are actively trying to regrow roots, it is also important to provide adequate potassium (potash).

None of the fungicides that are readily available to homeowners is 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 control 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 1/4 inch of water to move the fungicide into the root zone where it is needed to protect roots.



Fig. 3. Severe take-all root rot.

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