COOL SEASON PATCH DISEASE ON BLUEGRASS TURFS

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The common summer diseases; dollarspot, brown patch, fusarium blight and pythium blight may devastate Kentucky bluegrass. In addition, several cool season maladies; leaf spot, stripe smut, red thread and various snow molds may continue the assault to present the turf manager with a regular succession of problems. In general these diseases are well documented and control measures have been established. Particularly if the disease attack is anticipated and preventative measures taken, then damage can be kept to a minimum. Occasionally, however, symptoms of diseases occur seemingly out of their usual seasonal sequence and control measures normally deemed effective often afford no improvement. Such situations may be the result of misdiagnosis or occasionally, to the delight of the turf pathologist, a new pathogen is implicated. If we cannot find a new pathogen then just to confuse you we may even change the name of an old one!

Pink patch, a cook season disease of Kentucky bluegrass (and other turfgrasses) is a good example. Two groups of basidiomycetous fungi with pink mycelia now known to be associated with red thread disease (also known as pink patch or Corticium disease), a disease complex previously attributed to the pathogenic activities of Corticium fuciforme. This name is no longer valid. One group comprises isolates of Laetisaria fuciformis. A second more heterogeneous group contains species in the genus Limonomyces having hyphae with clamp connections. Physiological and pathological studies on selected isolates from the two groups have demonstrated differences in growth rate, temperature parameters for growth, method of ingress, and response to certain fungicides. The name "red thread" disease should be restricted to describe symptoms and signs of the turf disease caused by the fungus L. fuciformis. Turf exhibiting similar disease symptoms caused by basidiomycetes with pink, clamped mycelium and lacking needle-like red stromata should be referred to as "pink patch". Both diseases are favored by cool moist weather on turf low in vigor. Though not easily distinguished in the field and often occurring together, it is fortunate that some of the newer fungicides, e.g. Chipco 26019 and Bayleton are effective against both diseases and symptoms of both diseases are suppressed when nitrogenous fertilizers are applied.

Brown patch is a common high summer disease of Kentucky bluegrass and other turfgrasses, characterized by brown patches of damaged grass that typically are surrounded by a gray smoke ring of recently wilted leaves. The causal fungus, Rhizoctonia sonali, is an aggregate species exhibiting wide variation in pathogenicity and tolerance to environmental conditions. Biotypes of this common soilborne fungus are capable also of causing typical brown patch disease under cool weather conditions, a situation that was recognized in the 1960's in California and confirmed recently in Canada. Disease attributable to the low temperature activities of R. solani, but with symptoms vastly different to the typical brown patch, was reported also in the sixties as being common in the dry southwestern states. Symptoms took the form of circular or frog-eye patches and concentric rings of yellowed or browned turf without a smoke ring, closely resembling those of Fusarium blight. The widespread occurrence of such symptoms on Kentucky bluegrass (and other turfgrasses) in several eastern and midwestern states during the

mid-seventies prompted investigation. Close scrutiny of the causal organisms revealed that it was indeed a Rhizoctonia, but R. cerealis and not R. solani. This "cool weather brown patch" is now known as yellow patch disease. Research is currently underway to establish cultural and chemical control measures.

The recognition of yellow patch resolved some of the unexplained cool season disease problems on Kentucky bluegrass but not all of them. During the 1960's take-all patch disease (formerly Ophiobolus patch), became a major problem in the Pacific Northwest, and in the 1970's it became established in New England. In both regions the disease, caused by Gaeumannomyces graminis is severely damaging to bentgrass turf. The fungus can attack other grasses but on Kentucky bluegrass turf the damage observed has been of negligible proportions. Nevertheless, cool season symptoms akin to take-all patch have caused concern in recent years and a dark brown fungus mycelium resembling G. graminis has been observed on the roots and crowns of bluegrass plants taken from the diseased areas. Fusarium species often were present also and in some instances the disease has been dismissed as the residual symptoms of Fusarium blight.

A severe patch disease of Kentucky bluegrass turf, first noted in the fall of 1982 in the Northeast, was identified initially as take-all patch. However, isolates of the associated fungus were induced to fruit in the laboratory at the University of Rhode Island and recently they were positively identified as Leptosphaeria korrae, new to the United Staes, but documented in Australia as an incitant of Spring dead spot of bermudagrass. This newly recorded fungus probably figures as a turfgrass pathogen under cool moist conditions similar to those favoring the take-all fungus. Management practices that alleviate the symptoms of the latter (lowering the surface pH) also appear to be effective with this newly recognized disease. Presence of L. korrae on cool season grasses in this country is apparently widespread, and the full implications of "Leptosphaeria patch disease" await further investigation.