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Diagnosis of Turfgrass Diseases: The Art and the Science

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Diseases are perhaps the most unusual and perplexing of the pest problems affecting highly managed turf. As a result, diagnosing problems that may be caused by disease represents one of the more challenging and frustrating exercises in turfgrass management.

Both weed and insect pests can be readily seen with the unaided eye. Insects or weeds, regardless of their stage of development, look much the same in any environment. In addition, being readily visible, they can be matched in appearance with the diagrams and photographs presented in books and other diagnostic reference aids.

Diseases, on the other hand, are caused by a wide variety of microscopic organisms, none of which is observable with the naked eye. And the activities of these pathogens can be seen only indirectly, by observing the responses of the turfgrass plants they have infected.

Diagnosis is complicated further by differences in the symptoms of infection by a particular pathogen, depending on factors such as the species of grass involved, the height of cut, local environmental conditions, or the presence of other pests and pathogens. Chemical, physical and biological stresses also affect the expression of symptoms.

Disease diagnosis can be thought of as a process of elimination, in which the range of potential causes for the observed problem is carefully reduced to one. The sequence of steps one follows in diagnosing turfgrass diseases is designed to assemble evidence for and against possible causes for the observed problem. It is important, therefore, that turfgrass managers maintain accurate and complete records of both site management activities and the season's weather. Combining these two data sets with careful observation of the turfgrass symptoms and examination of pathogen structures permits identifying associations between the disease and a causal agent.

Because they are perennial plants, turfgrasses develop long-term associations with pathogens. In fact, in nearly all mature turfgrass plantings, individual plants are continuously infected with many, if not all, of the pathogens capable of causing disease in that particular grass species. This is why symptoms of many turfgrass diseases are detected most often when turfgrass plants are under stress. Additionally, the presence of many turfgrass pathogens in a single sample complicates disease diagnosis by making it difficult to reduce the probable causes of the symptoms observed to a single agent.

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