



TURF AX™

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CONTENTS:

- Causal Pathogen - Koch's Postulates.
- Significant New Disease?
- JB Visitations.
- JB Comments - Manual *Poa annua* control.
- Upcoming JB Visitations.
- Upcoming International Events.
- New Publication Available.
- Effects of eleven herbicides on the vegetative establishment of Adalayd seashore paspalum.
- Seashore paspalum control?

SIGNIFICANT NEW DISEASE?

A new concern in terms of increased disease has been experienced in the United States. It involves a disease that attacks perennial ryegrass (*Lolium perenne*), which is principally noticeable on closely mowed fairway and sports turfs. The injury symptoms involve a general fading and thinning under hot, humid conditions. The appearance is similar to an under-fertilized turf or a partially senescent plant. There are no distinct lesions on the shoots. Its occurrence has been observed from southern New England through the Carolinas and Georgia; as far west as Kentucky and Ohio; and possibly in Illinois.

Laboratory examinations reveal the presence of the *Pyricularia grisea* pathogen. This fungus is reported in scholarly texts as occurring on perennial ryegrass, but it has not been recognized or proven as a significant problem under typical field conditions. Koch's postulates have not yet been accomplished to prove that *Pyricularia grisea* is the causal pathogen of this newly recognized disease. There is the possibility that a complex of several causal organisms is involved.

Obviously there is a lot to learn about the cause of this disease on perennial ryegrass. Is this an occurrence that is limited to extraordinary hot, humid conditions similar to the summer of 1995, or will it be an annual reoccurrence in future summers? How can it be controlled? This is just another example of the continual changes and new developments in the diverse biology of turfgrass science and culture. It is what makes turfgrasses so interesting and challenging to those of us involved.

CAUSAL PATHOGEN - KOCH'S POSTULATES

Simply finding the presence of fungal structures or fruiting bodies in a diseased patch of turf does not indicate it is the causal pathogen. Researchers must successfully complete Koch's postulates before the causal pathogen of a new disease can be identified. The steps are:

1. The pathogen must be found associated with the particular disease in all plants examined.
2. The pathogen must be isolated and grown in pure culture on nutrient media, and its characteristics described in the case of a nonobligate parasite, or on a susceptible host plant in the case of an obligate parasite.
3. The pathogen derived from pure culture must be inoculated onto healthy plants of the same species and cultivar on which the disease is observed, and it must produce the same disease symptoms on the inoculated plants.
4. The pathogen must be re-isolated in pure culture and its characteristics determined as exactly those observed in step 2 above.