Research Summary

Wear Tolerance of Cool-Season Turfgrass Cultivars

A new method to simulate wear stress on large-scale turfgrass cultivar characterization studies was utilized to assess the comparative cultivar wear tolerance within nine cool-season turfgrasses. The wear assessments were conducted in two different years for the Kentucky bluegrasses (*Poa pratensis*) and perennial ryegrass (*Lolium perenne*) cultivars. Wear frequencies ranged from every two days in June and July to every four days in August. The resultant wear stress tolerance assessments were based on visual estimates.

Kentucky bluegrass cultivars, having good to excellent wear tolerance in both studies included, Princeton 103, Princeton P-105, Unique, and Eclipse. There was great variability in comparative wear tolerance among the 43 cultivars assessed in one study and also among the 54 cultivars in the second study.

Comparisons among the perennial ryegrass cultivars revealed that the most recently developed cultivars had better wear tolerance. Palmer III, Catalina, and Prizm had relatively high wear tolerance ratings in both years. The newer cultivars, such as Churchill, Exacta, Paragon, and Gator II, had excellent wear tolerance. There were 96 cultivars in one study and 32 cultivars in the new cultivar study.

Among the five fine-leaf fescues (*Festuca* spp.), Chewing's and hard fescues, as a group, had better wear tolerance than the strong-creeping red, sheep, and slender-creeping red fescues. However, Pathfinder strong-creeping red fescue had significantly better wear tolerance than the other 31 fine-leaf fescue cultivars assessed. Also, Reliant II hard fescue had excellent wear tolerance, while Southport and Brittany Chewing's fescues had good wear tolerance ratings.

Among the bentgrass (*Agrostis* spp.) cultivar assessments, the colonial bentgrass cultivars typically had better wear tolerance than the creeping bentgrass cultivars under a fairway cutting height of 0.4 inch (1.03 cm). Penn G-2 creeping bentgrass had the best wear among 32 bentgrass cultivars in the putting green assessment study and 26 cultivars in the fairway assessment study. Recently developed colonial bentgrasses, SR 7100 and Pebble, had better wear tolerance than most creeping bentgrass cultivars in the fairway assessment study.

Comments. Research by Anda and Beard has shown that the relative wear stress tolerance among Kentucky bluegrass cultivars is highly correlated with the canopy biomass, as reflected in a high shoot density.

Source: *Breeding cool-season turfgrasses for wear tolerance using a wear simulator* by S.A. Bonos, E. Watkins, J.A. Honig, M. Sosa, T. Molnar, J.A. Murphy, and W.A. Meyer. International Turfgrass Society Research Journal, 9:127–149, 2001.

...Yellow Patch and Red Thread...

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cm) to three feet (90 cm) in diameter. Patches frequently coalesce to involve large, irregular shaped areas. From a distance, affected turf has a straw-brown, tan, or pinkish color. The signs of red thread are distinctive and unmistakable. In the presence of morning dew or rain, a coral-pink or reddish layer of gelatinous fungal growth can easily be seen on leaf blades and sheaths. The infected green leaves soon become water-soaked in appearance. When leaves dry, the fungal mycelium becomes pale pink in color and on close inspection it is easily seen on the straw-brown or tan tissues of dead leaf blades and sheaths. Bright red, hard, and brittle strands of fungal mycelium called "red threads" or sclerotia can invariably be observed extending from leaf surfaces, particularly cut leaf tips. These red threads fall into the thatch and serve as resting structures for the fungus by surviving long periods that are unfavorable for growth of the pathogen. Pink patch (*Limonomyces roseipellis*) produces similar signs and symptoms, however, the pink patch fungus does not produce sclerotia. Pink patch is usually found in association with red thread, and its pathological properties and management are the same as for red thread.

Management. Red thread is generally, but not always, most injurious to poorly nourished turfs. The pathogen is a foliar blighter and does not infect crowns or kill plants. Frequently, red thread is best managed by an application of 1.0 to 2.0 lb nitrogen/1,000 ft^2 (50–100 kg N/ha). **Quick-release, water-soluble nitrogen (e.g., urea) is more effective in reducing red thread injury than slow-release nitrogen. The most effective suppression accorded by nitrogen occurs when fertilizer is applied as soon as the disease develops** and may be less effective after significant blighting has occurred. The level of suppression provided by nitrogen does not always reduce blighting to commercially acceptable levels. **Application of nitrogen during periods too**

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