

A HISTORICAL LOOK AT HOME LAWN DISEASES

David M. Gilstrap

Department of Crop and Soil Science

Michigan State University

During the last third of the Twentieth Century, Kentucky bluegrass became the most widely used turfgrass species for home lawns, wherever it could be grown. Before that, Kentucky bluegrass was not used much on home lawns because it could be decimated by melting out disease, which is characterized initially by leaf and sheath lesions. As the disease progresses, these lesions enlarge and girdle the vascular system causing entire leaves and tillers to die and drop off. Early on, the pathogen was identified as being *Helminthosporium vagans*, and as late as 1969, the disease along with many others was simply called leaf spot. In the United Kingdom, the disease has also been called foot rot. Beginning in the late 1950's, this genus was segregated into the *Bipolaris* and *Drechslera* genera, and since 1962, the causal organism has been called *Drechslera poae*. The name melting out comes from the severe thinning of the turf that can result when nearly all the leaves and crowns are killed.

Kentucky bluegrass cultivars available early on were Delta, Primo, and Arboretum, as well as common Kentucky bluegrass. In the 1950's and 1960's, seed companies began to release new cultivars of Kentucky bluegrass, but most of these, such as Delta, Cougar, Kenblue, NuDwarf, Park, and South Dakota Certified, were very susceptible to melting out. Other cultivars were moderately susceptible, and included in these were Campus, Delft, Fylking, Newport, and Windsor. However, melting out continued to be the major disease problem of Kentucky bluegrass, so much so that it was generally unacceptable for home lawns where any appreciable level of quality was desired.

Therefore, for those living in the northern United States, the lawn species of choice used to be either fine fescue or creeping bentgrass, neither of which was susceptible to melting out. However, these grasses had their own sets of disease pests. Fine fescues were very susceptible to leaf spot, or '*Helminthosporium* blight' as some turf pathologists called it. Bentgrass fell prey to brown patch, dollar spot, *Pythium* blight, and pink and gray snow molds, to name several turf diseases.

With regards to cool-season home lawns, a historically significant event occurred when Joseph Valentine discovered a unique Kentucky bluegrass growing at the Merion Golf Club where he worked as the superintendent of the golf course, which is in suburban Philadelphia. He sent a sample to the United States Department of Agriculture, and it was subsequently planted in the Arlington Turf Gardens where it was an excellent performer. In 1947, the cultivar was released jointly by the USDA and the USGA Green Section as Merion Kentucky bluegrass. It had excellent resistance to melting out, and because of this, it became the predominant cool-season cultivar used in home lawns. By the late 1960's, over 900 sod farms existed on a combined 60,000 or so acres, with most of them producing Merion bluegrass. Other cultivars were sold in lesser amounts, particularly those noted above as having moderate resistance to melting out.

The next disease that impacted cool-season home lawns was stripe smut, a foliar disease that attacks the interveinal tissue of leaf blades and sheaths giving them a streaked appearance. These parallel streaks are at first yellow but quickly turn to gray. Leaves shred from the tip downward, turn brown, and die. This trauma predisposes the plants to other stresses such as heat, drought, or other diseases. In four-to five-year-old seedings, individual plants can begin to die and the disease can spread to other susceptible cultivars nearby.

Numerous races of stripe smut have evolved and the one that was active in the 1970's attacked several commercially important cultivars, particularly Merion, Windsor, Fylking and Cougar, while others such as Campus, Delta, and Newport were moderately resistant to the disease. At least two cultivars, Park and Delft, had good stripe-smut resistance. At the time, the conventional practice was to plant Kentucky bluegrass cultivars alone and not as blends or mixes. Therefore, if the only cultivar present was very susceptible to stripe smut, then entire stands were often wiped out.

Stripe smut tolled the eventual demise of Merion Kentucky bluegrass as a commercial cultivar, along with the others that were readily susceptible to the disease. Their viability was extended somewhat by seeding them as blends with stripe-smut resistant cultivars. Fortunately, turfgrass breeders were able to develop other lines that had resistance to melting out, and they were labeled as being 'Improved' Kentucky bluegrasses. Stripe-smut resistance is also common in today's cultivars. However, the recommendation still exists today that Kentucky bluegrass should originate from blends of seeds from cultivars that are somewhat genetically diverse, thus guarding against the day when a new race of stripe smut evolves and is able to recognize a prevalent host.