TEXAS A&M UNIVERSITY

Developing Rhizoctonia Brown Patch and Pythium Disease Resistance in Bentgrass and Zoysiagrass

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USGA research on resistance of bentgrasses and zoysiagrasses to *Pythium* and *Rhizoctonia* blight diseases is completing the fifth year of study. Progress during the last year has centered on assessments of germplasm material from the heat tolerant germplasm and new progeny from crossing blocks that include parental bentgrass lines which are resistant to one or both of the diseases. Virulent isolates of USGA culture collections for both pathogens are being used for the disease resistance screening program.

Plant samples obtained from heat tolerant bentgrass field plots were inoculated in the walk-in growth chamber which simultaneously evaluated 720 test cells for resistance to root rot disease caused by *Pythium* spp. The plant samples represented genotypic segregates of seven varieties in each of the field nurseries. Soil cores containing the plants were placed in growing trays which were partially submerged in sterile water and inoculated with *Pythium aphanidermatum*. Observations on the death of the field plugs were recorded over a four week period under high humidity in the laboratory. Root rot resistance among 720 genotypes was greater in the non-heat tolerant bentgrass nursery than in the heat tolerant nursery. These observations are consistent with previous observations on *Pythium* blight visual ratings on the field plots during 1990.

Pythium inoculations of established germplasm lines from a genetic crossing block were made in the greenhouse on a sand heat bench used for identifying heat stress tolerant bentgrass genotypes. The limited disease ratings obtained with plants inoculated on the greenhouse bench required further testing of the genotypes in the walk-in growth chamber. Inoculations in the walk-in chamber using previously established methods with cups gave significantly higher disease ratings on the same genetic material. In contrast to greenhouse studies which allowed only low disease pressure, 38% of the population was susceptible to *Pythium* foliar blighting four days after inoculation.