

leaf spot at rates between 250-300 g ai/ha. Spray intervals for control of these two diseases may be extended up to 21-28 days at spray volumes as low as 400 l/ha. Control level of brown patch and gray leaf spot was comparable to or better than that of leading standards such as azoxystrobin, iprodione, propiconazole, chlorothalonil, and others. F500 applied at 14-day intervals provided effective control of Pythium blight at rates between 300-560 g ai/ha, being comparable to metalaxyl, mefenoxam, and azoxystrobin. Applied preventatively at 300-560 g ai/ha and 14-day intervals, F500 provided good suppression of dollar spot. F500 has proven to be safe on all common turfgrass species.

A comparison of disease assessment methods for southern stem rot of peanut. S. L. RIDEOUT (1), T. B. Breneman (1), and K. L. Stevenson (2). (1) Department of Plant Pathology, University of Georgia, Coastal Plain Experiment Station, Tifton, GA, 31793; (2) Department of Plant Pathology, University of Georgia, Athens, GA 30602. Phytopathology 91:S203. Publication no. P-2001-0013-SOA.

Traditionally, disease assessment of southern stem rot of peanut (*Sclerotium rolfsii*) has been evaluated using disease incidence ratings reflecting percentage of infected row feet. During 1999 and 2000, several alternate disease assessment methods were evaluated in five fungicide trials both at digging and during the growing season. Pearson correlation coefficients were calculated for disease ratings and yields for all trials. At digging, total disease severity per plot ($r = -0.31$ to -0.63), average severity per disease focus ($r = -0.37$ to -0.53), total length of row with symptoms ($r = -0.34$ to -0.61), average length per disease focus ($r = -0.33$ to -0.62), and disease intensity ($r = -0.27$ to -0.61) were significantly correlated to yield ($P < 0.05$) in all five trials. Disease incidence was significantly correlated with yield in four of the five trials ($r = -0.44$ to -0.59). Similar trends were noted in the mid-season ratings, where correlation coefficients were usually higher for disease severity and intensity ratings than for disease incidence. Disease incidence ratings took 2.33 min per plot (15.2 m of row), whereas more detailed evaluations took from 2.75 to 3.01 min per plot.

Strategic application of fungicides for control of brown patch on creeping bentgrass. J. K. ROYALS II and S. B. Martin. Department of Plant Pathology and Physiology, Clemson University, Clemson, SC 29634. Phytopathology 91:S203. Publication no. P-2001-0014-SOA

Creeping bentgrass (*Agrostis stolonifera* L.) is susceptible to brown patch (*Rhizoctonia* spp.) in summer months. Fungicides are used to control brown patch, but their strategic use in a changing epidemic has not been studied. In this study, preventive and curative fungicide programs were evaluated. Preventive treatments were made on a 14-day schedule, with low label rates of each product. Curative fungicides were chlorothalonil or azoxystrobin, at high label rates. Programs were replicated 4 times in RCB design within four cultivars, Penn A-1, Crenshaw, L-93, and Penncross, in a Latin square design. Plots were rated visually for disease severity and programs were compared using area under disease progress curves. Most preventive programs were more efficacious than curative programs. Programs with azoxystrobin or chlorothalonil plus fosetyl-Al performed well during periods of high disease pressure. Programs with thiophanate methyl failed to control *R. zeae*. *R. solani* AG 2.2 IIIB was present throughout the season. In 1999 and 2000, disease severity on Crenshaw exceeded that on other cultivars. Disease severity among other cultivars differed in 1999 and 2000. During periods of high disease pressure, fungicides effective against both *R. solani* and *R. zeae* needed to be used.

Effect of inoculum type of *Rhizoctonia solani* and cultivar on damping-off of tomato. D. SETH and B. H. Ownley, Dept. of Entomology and Plant Pathology, The University of Tennessee, Knoxville, TN 37996. Phytopathology 91:S203. Publication no. P-2001-0015-SOA.

The main objective of this study was to evaluate 10 tomato cultivars for their susceptibility to damping-off caused by *R. solani*. The cultivars included Carolina Gold, Celebrity, Hybrid 882, Mountain Belle, Mountain Delight, Mountain Fresh, Mountain Pride, Mountain Spring, Mountain Supreme, and Sun Pride. The second objective was to compare two forms of *R. solani* inoculum for ability to cause disease on tomato seedlings. Inoculum of *R. solani* was produced on either rice or cornmeal sand and was added to potting soil at 1 percent 0.5-1.0-mm sieved rice, and 4 percent cornmeal sand. Percent surviving seedlings was determined at 21 days after planting. Disease severity of surviving plants was recorded also. There was no difference in percent surviving seedlings for the two types of inoculum. However, for surviving plants, disease was more severe with cornmeal sand inoculum. There was a significant interaction between inoculum type and cultivar for percent surviving seedlings. With cornmeal sand inoculum, survival was greatest for Carolina

Gold and least for Mountain Spring, Celebrity, and Sun Pride. With rice inoculum, seedling survival was greatest Hybrid 882 and Mountain Supreme, and least for Mountain Belle, Celebrity, and Mountain Spring.

Phytophthora disease of citrus associated with root weevils in Texas. M. SKARIA and J. V. French. TAMU-K Citrus Center, 312 N. International Blvd., Weslaco, TX 78596. Phytopathology 91:S203. Publication no. P-2001-0016-SOA.

Since August 2000, we have been trying to identify the cause(s) of the rapid decline and death of orange trees in several citrus orchards in the Lower Rio Grande Valley of Texas. Affected trees first showed leaf wilt, yellowing and defoliation, followed by tree death in 4-5 weeks. Trees were removed and the roots washed with a handgun sprayer. The roots showed extensive insect feeding injury (channeling), together with severe Phytophthora root rot. The channels varied from 1.25 to more than 30 cm in length, and up to 1.25 cm wide. White larvae subsequently identified as the blue-green citrus root weevil, *Pachnaeus opalus*, and the sugarcane root stalk borer weevil, *Diaprepes abbreviatus* were identified in the soil. To date, one adult of *D. abbreviatus* has been captured in a 'Teddens trap' placed in the orchard. Soil and root analysis confirmed the presence of the *Phytophthora* fungus. This weevil(s)-*Phytophthora* complex is the first report from Texas citrus. It exists in several locations and in one orchard, 4.7% of the 1584 trees surveyed, were either dead or declining.

Multiplex PCR for an identification and diagnostic system of *Meloidogyne* species. D. D. SUI (1), D. A. Kluepfel (1), B. A. Fortnum (2), and S. A. Lewis (1). (1) Dept. Plant Pathology & Physiology, Clemson University, Clemson, SC 29634-0377; (2) Dept. Plant Pathology, Clemson University, Pee Dee REC, Rte. 1, Box 531, Florence, SC 29501-9603. Phytopathology 91:S203. Publication no. P-2001-0017-SOA.

Species identification in root-knot nematodes, *Meloidogyne* spp., has been a critical component of integrated pest management and in basic nematology research. Differentiation of the four major species, *M. incognita*, *M. arenaria*, *M. javanica*, and *M. hapla*, plus *M. chitwoodi*, requires extensive expertise in perineal and isozyme patterns. Here we report a simple, reliable technique for identification and a diagnostic system for these species. The PCR amplicons on agarose gel for identification of these species were 420, 820, 1120, 340, and 1020 base pairs, respectively. For the first four species we were able to design a one-step octaplex PCR diagnostic system that distinguishes them from each other by a single band at 1350, 1050, 420, and 700 base pairs, respectively. This is the first report that identification and diagnosis of these root-knot nematode species can be achieved in one-step PCR without the need of post-PCR restriction digestion. These species-specific PCR primers have potential to be optimized into a multiplex PCR diagnostic kit.

A PCR-based assay for mating type determination in *Magnaporthe grisea*. L. P. TREDWAY (1), S. F. Covert (2), S. E. Gold (1), K. L. Stevenson (1), and L. L. Burpee (1). (1) Dept. Plant Pathology, University of Georgia, Athens, GA 30602; (2) School of Forest Resources, University of Georgia, Athens, GA 30602. Phytopathology 91 S203. Publication no. P-2001-0018-SOA.

Magnaporthe grisea is a major pathogen of grasses, including several of economic importance. The genetic structure of *M. grisea* populations has important implications in disease management, and the distribution of mating types influences population structure. Our objective was to develop a PCR-based assay for determining mating type in *M. grisea*. Specific PCR primers were designed for each mating type idiomorph. The primer pairs specific to Mat1-1 and Mat1-2 mating types yielded products of 552 bp and 390 bp, respectively. The primers retained their specificity in multiplex PCR reactions, and the products were easily differentiated in a 1% agarose gel. The assay was tested on 40 *M. grisea* isolates of known mating type from several hosts. PCR products of the expected size were observed in all cases. Southern analysis was used to verify that the PCR products were homologous to the mating type idiomorphs. The assay was used to determine mating type distribution in Georgia populations of *M. grisea*. Preliminary results will be presented.

Evaluation of disease resistance of transgenic and conventional soybean [*Glycine max* (L.) Merrill] varieties and further determination of the associated pod and seed mycoflora in Mississippi. D. A. VILLARROEL and R. E. Baird. Dept. of Entomology and Plant Pathology, Mississippi State University, Mississippi State, MS 39762. Phytopathology 91:S203. Publication no. P-2001-0019-SOA.

During 1999 and 2000, experiments were conducted in soybean at two locations (Stoneville and Starkville, 33° 26 minutes N latitude) in Mississippi.