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## Survival of Parasitic and Saprophytic Fungi on Intact Senescent Cotton Roots

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In reduced tillage and no-tillage production systems, crop debris is left undisturbed on the surface of the ground. This debris often harbors plant pathogens that may incite plant diseases. This survey was conducted to identify fungi associated with intact senescent cotton (*Gossypium hirsutum*) root systems in no-tillage production systems. Root systems were collected from Burke (southeast), Floyd (northwest), and Tift (southwest) counties in Georgia over 2 yr. Tissue sections (1 cm) of primary and secondary roots were assayed to determine mycobiota diversity monthly from December through April of 1994–1995 and 1995–1996. Forty genera of fungi were isolated including *Alternaria*, *Chaetomium*, *Curvularia*, *Melanospora*, and *Trichoderma*. Among the fungi isolated were several common boll rot pathogens, including *Lasiodiplodia*, *Pestalotia*, and *Phoma*. Mean isolation frequency for total fungi identified in 1995 was 8.8% on the primary roots to 8.1% on the secondary roots. In 1996, mean isolation frequency for total fungi was 14.8% from primary roots and 14% from secondary roots. Isolation frequencies of the important cotton seedling disease fungi *Rhizoctonia solani* AG-4 and *Pythium* spp. were low throughout the study, but these fungi were present in the roots collected just prior to cotton planting in April of both years. *Fusarium oxysporum*, responsible for seedling disease and wilt of mature plants, was routinely isolated from the root tissues throughout the sampling period. Pathogenicity tests of 30 isolates of *F. oxysporum* collected from the roots in 1995 and 60 isolates from 1996 were conducted on cotton seedlings in the greenhouse. Of the *F. oxysporum* isolates tested, 91.0% were pathogenic, and 13.5% and 15.7% of the isolates caused seedling death in greenhouse trials conducted in 1995 and 1996, respectively. Injury caused by the *F. oxysporum* isolates included cotyledon or leaf lesions, root tissue necrosis, and tap root pruning. Isolation frequency of *F. oxysporum* for all sites was greater than those for any other fungi identified during both years of the study. These results demonstrate that seedling disease and boll rot pathogens overwinter on intact senescent roots.