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RESISTANCE TO RENIFORM NEMATODE IN EXOTIC COTTON LINES

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Abstract

Reniform nematode has caused significant yield reductions for many years in cotton production across the Mid-South. Without any resistant cultivars available at this time, crop rotation and the use of insecticides/nematicides are the only means of reducing the amount of infestation in the fields. The objectives of this study were to 1) evaluate eight *Gossypium arboreum* accessions for reniform nematode resistance, 2) evaluate the inheritance of resistance to reniform nematodes in selected *G. arboreum* accessions, and 3) evaluate selected *Gossypium hirsutum* day neutral plant selections for resistance to reniform nematode. Seven *G. arboreum* accessions (A2-076, A2-113, A2-019, A2-144, A2-159, A2-190, and A2-194) were crossed with susceptible A2-082. Individual F_2 plants from crosses A2-190 x A2-082 and A2-019 x A2-082 were evaluated for reniform nematode resistance. The *G. hirsutum* day neutral plant selections MT 2468, MT 2469, and MT 1348 were also evaluated for resistance to reniform nematodes. Plants were evaluated under greenhouse conditions. Three reniform nematodes g^{-1} of soil were added to the sand mixture, which consisted of a fine mason sand (<400µm). Nematodes were extracted from the soil using the Baermann Funnel technique. Nematode reproduction was expressed as the number of reniform nematodes g^{-1} soil. Resistance was confirmed in each of 7 *G. arboreum* accessions. The F_2 progeny of A2-190 x A2-082 and A2-019 x A2-082 showed similar results for resistance. Preliminary results indicated that partial dominance may be involved in the inheritance of resistance to reniform nematodes. A preliminary test of F_3 *G. hirsutum* day neutral plant accessions (MT 2468, MT 2469) and F_4 MT 1348 was evaluated for reniform resistance. Seven plants of MT 2468 and two plants of MT 1348 were found to be resistant to reniform nematodes.