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DEVELOPMENT OF COTTON GERMPLASM WITH RESISTANCE TO RENIFORM NEMATODE

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Reniform nematode (*Rotylenchulus reniformis*) is an economically important pathogen of Upland cotton, yet development of varieties with resistance to the nematode has been limited. In 2001, crosses were made among day-neutral selections of *Gossypium hirsutum* (T19-12, T19-13, T19-27, T19-30) and *G. barbadense* (T1347-2, T1347-31) Texas race stocks with resistance to the reniform nematode, DES119H (reported as tolerant or moderately resistant), or 55-3 (susceptible). In 2003, $F_{2:3}$ progeny from these crosses were grown in a field infested with reniform nematode. Selections from the parent race stocks and from race stocks T1348-27 and T1348-30 (resistant) also were grown. Three weeks after planting, five individual plants per row were harvested with a bulb digger to maintain an intact root system. Most of the soil was removed by gentle crumbling of the soil away from the roots, and then the roots were soaked in water to remove any soil adhering to them. The number of swollen female reniform nematodes attached to the roots was determined. Families with 30 or fewer female reniform nematodes per root system on each of the five plants examined were considered to have a reasonable level of resistance and were selected for increase and further evaluation in the greenhouse and/or field in 2004. Of the 889 $F_{2:3}$ families evaluated, 117 were selected for further assessment and possible advancement to stabilize the resistant phenotype. Of the 150 race stock populations evaluated, 53 were selected for further assessment and possible advancement to stabilize the resistant phenotype. Additional crosses were made among $F_{2:3}$ plants: T19-30-15×T1347-2-19, T19-30-15×T1348-30-13, and T1347-2-19×T1348-30-13. Progeny from these crosses will be evaluated in 2004.