INTROGRESSION OF RENIFORM NEMATODE RESISTANCE INTO UPLAND COTTON

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Abstract Only

The reniform nematode (Rotylenchulus reniformis) causes cotton (Gossypium hirsutum) yield losses. No resistant G. hirsutum cultivars are available, however resistance occurs in some diploid Asiatic cotton accessions. Our objectives were to develop hybrid materials between resistant diploid cottons and tetraploid cultivated cotton, and determine the number and inheritance of genes conferring resistance in G. arboreum. Three basic steps where followed: interspecific diploid-diploid hybridization, chromosome doubling, and introgression into upland cotton. Twelve synthetic AD diploid hybrids have been obtained. One chimeric synthetic tetraploid was produced and crossed with upland cotton to obtain the F1 triple-hybrid. Resistance in the BC1F2 and BC2 generations was found. The data indicate that a single gene confers resistance, because it segregates in the F2 generation in a ratio of 3:1 resistant:susceptible (X2 < 0.73) and shows an additive effect.