

**PEST RESISTANCE AND AGRONOMIC PERFORMANCE OF UPLAND COTTON LINES
FOLLOWING EIGHT GENERATIONS OF INTROGRESSION OF THE BNL3279_105 DNA MARKER
FROM *GOSSYPIMUM BARBADENSE* GB 713**

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Abstract

The BNL3279 primers give unique DNA markers that are closely linked with resistance to the reniform nematode in *Gossypium longicalyx*, *Gossypium barbadense* GB 713, and *Gossypium aridum*. Plants that had been selected and advanced based on reniform nematode bioassays for five or six generations of crossing and backcrossing and had the BNL3279_105 marker were crossed for two additional generations into several cultivars selecting for the marker at each generation. The S₁ populations from the final crosses were selected for homozygosity of BNL3279_105. S₂ generations were evaluated in the growth chamber and field for resistance to reniform nematode and yield. S₃ generations from select S₂ plants were evaluated against reniform nematode/fungal root-rot complexes in the growth chamber, greenhouse, and field and for yield in the field. Gene(s) associated with BNL3279_105 give resistance to both nematodes and fungal root-rot pathogens and 50% or greater yield increases in several genetic backgrounds. These gene(s) appear to have great value in cotton breeding.