

**REPRODUCTION OF *MELOIDOGYNE*
INCOGNITA AND *ROTYLENCHULUS*
RENIFORMIS
ON 59 MAJOR COTTON VARIETIES PLANTED
DURING 1950-1995**

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Abstract

Four growth chamber experiments were conducted to compare reproduction by *Meloidogyne incognita* race 3 (root-knot nematode) and *Rotylenchulus reniformis* (reniform nematode) on 59 cotton varieties. The major cottons in each of the major production regions in each decade from 1950-1995 were represented, and were estimated to account for more than half of all acreage planted to Upland cotton in the United States during the last half century. Population increases by the two nematode species were directly compared on each variety in each experiment. Auburn 623 was included as a resistant control for *M. incognita*; Deltapine 16 was included as a susceptible control for both nematodes. Six replicate plants were included for each combination of cotton variety and nematode in a randomized complete block design. Overall, it was found that all varieties supported high levels of reproduction by *R. reniformis*; also, *R. reniformis* delayed fruiting by most varieties in all decades. Moderate levels of resistance to *M. incognita* was measured in several earlier varieties, including Coker 100 and Coker 100W (which had peak acreages about 1957), Acala SJ-1 (which peaked about 1973), Tamcot SP-21 (peak acreage 1979), and Stoneville 825 (peak acreage 1982). The Pima (*G. barbadense*) cottons S-5, S-6, and S-7 (planted 1970-1996) supported exceptionally high levels of reproduction by *M. incognita*, with population multiplication factors above 200; Pima S-2, however, which was planted in the early 1960's, was as resistant as most resistant varieties of *G. hirsutum*. The highest and most consistent levels of resistance to *M. incognita* were measured in varieties that have come into the fore in the 1990's. These included CPCSD Nem-X, Stoneville LA887, Hartz 1560, Paymaster HS-26, Suregrow 501, and Deltapine 5415. Results are generally consistent with the prediction that increased levels of resistance to *M. incognita* but not *R. reniformis* in recently released cultivars may favor population buildup by the latter in regions where they both occur.