

APPENDIX B

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INTERACTIONS OF *MELOIDOGYNE INCOGNITA* POPULATIONS WITH SELECTED COTTON CULTIVARS. Barker, K. R., and S. R. Koenning. Plant Pathology Department. Box 7616, North Carolina State University, Raleigh, NC 27695-7616.

The relative reproductive and parasitic fitness of races 3 and 4 of *Meloidogyne incognita*, as well as that of a variant population of *Meloidogyne* isolated from cotton in North Carolina, were evaluated on selected cotton cultivars in greenhouse and microplot experiments. The level of resistance of La-887, Auburn 634, and Nemx cotton cultivars was assessed in the greenhouse. Race 4 was the most aggressive population. Based on root-galling and egg development, all three cultivars had high levels of resistance to the three populations evaluated. On a 0–100 scale, the gall indices for the resistant cultivars ranged from 2 to 10 in contrast to 49 to 61 for Deltapine 16. Cotton cultivar Deltapine 20 supported somewhat more reproduction and tended to have higher gall indices than did Deltapine 50 in microplot experiments. The cultivar by population interaction was not significant. Although the race 4 population generally induced extensive root galling, it did not persist overwinter as well as two other North Carolina populations.

RELATIVE HOST SUITABILITY OF SMALL GRAINS FOR *MELOIDOGYNE* SPECIES AND POTENTIAL PROBLEMS WITH THEIR USE AS GREEN MANURE CROPS Barker, K. R., S. R. Koenning, and K. M. Parker. Department of Plant Pathology, N. C. State University, Raleigh, NC 27695-7616.

A greenhouse study focused on the relative host suitability of selected small grain cultivars for *Meloidogyne* species and the efficacy of incorporating their foliage in soil to suppress the development of *M. incognita* on cotton. Although root-galling differed only slightly on seven small grain cultivars, *M. javanica*, *M. incognita* races 1 and 4, and *M. arenaria* race 2 reproduced at greater rates than *M. incognita* races 2 and 3 and *M. arenaria* race 1. Barley supported the highest nematode reproduction; wheat was intermediate; and rye and oats were generally poor hosts. Races 1, 2, and 4 of *M. incognita* and *M. javanica* reproduced on Abruzzi rye. The incorporation of 50 to 100 gm of green foliage of barley, rye, or wheat/1,500 cm³ soil significantly suppressed root-gall development caused by *M. incognita* on cotton; the foliage of oats was less effective. The observed increase of *M. incognita* on a rye cover crop appears to enhance root knot in some cotton fields.