

**EFFECT OF COLUMBIA LANCE NEMATODE
ON PLANT GROWTH AND FRUIT SET**

**J. Mueller, K. Lege, L. May
Clemson University, U.S.D.A.
Blackville, Florence, SC**

Abstract

The effect of low to moderate levels of Columbia lance nematode (*Hoplolaimus columbus*) on plant growth and yield of Deltapine Acala 90 and Stoneville's LA 887 cotton cultivars was compared in a strip-plot test with paired comparisons of each cultivar nontreated and treated with 6.0 gal/A of Telone II. Three replications of 4 row plots 35-ft long on 38-inch centers were planted on May 23 at the Edisto Research and Education Center. Nematicide application to LA 887 lowered the Columbia lance nematode in the soil at midseason from 29 to 6 per 100 ml of soil and Pm/Pi from 5.4 to 1.9. Nematode control on Deltapine 90 was not as complete. Plant mapping at harvest showed that control of Columbia lance nematode reduced many plant growth parameters, although an increase in yield was observed in treated plots. Percent lint (ca. 38%) was unaffected by nematode control but mean yield of both cultivars was increased by 14%. Nematode control reduced plant height (from 50 to 45 inches) and the number of nodes (from 24 to 19) of LA 887. There were fewer reproductive nodes in treated than nontreated LA 887 but not Deltapine 90. However, more fruit were retained at harvest in both cultivars treated with nematicide than nontreated. Nematicide-treated LA 887 plants tended to be more determinate and had a more compact fruiting habit. The incidence of hardlock was lower in nematicide treated than nontreated plants for both cultivars. Infection by Columbia lance nematode appears to delay the shift to reproductive growth in the plant and thereby delay maturity date. This delayed maturity may cause the increased incidence in hardlock. A disruption in nutrient transfer in the plant associated with nematode infection may also be delaying maturity. Previous experience has shown that cotton cultivars grown in fields heavily infested with Columbia lance nematode are severely stunted and have gross reductions in most plant growth parameters. These results indicate that when grown in fields infested with a low to moderate level of Columbia lance nematode, some parameters such as boll number may be unaffected, but others such as maturity may actually be delayed and the plant may become inefficient in its retention of fruit and in filling and maturing bolls. This may explain the 10-15% yield loss seen in this study compared to the 35-50% yield losses seen in more severely infested fields.