

MISSISSIPPI COTTON NEMATODE SURVEY: RESULTS OF AN EIGHT COUNTY SURVEY

Gabriel L. Sciumbato and Julie A. Blessitt

MSU/DREC

Stoneville, MS

Don Blasingame

Magnolia Consultants, Inc

Starkville, MS

Nematodes are a problem all across the cotton belt. The three major species causing the most losses are the reniform, root-knot, and Columbian lance nematodes. The reniform nematode (*Rotylenchulus reniformis*) was first isolated in Mississippi 30 years ago. It has become the major plant parasitic nematode on cotton in Mississippi. This nematode is believed to be one of the major reasons for the yield stagnation observed in cotton for the last twenty years. This research was conducted to update earlier surveys and to determine how many fields were infested with parasitic nematodes and which nematodes were the most important. Eight Delta and Hill counties in Mississippi were surveyed for cotton parasitic nematodes in 2001 and 2002. Approximately 10% of cotton acreage from each county was selected randomly from fields marked by the Boll Weevil Eradication Program as being planted in cotton. For future reference, sample sites were recorded to ± 1 M using GPS. Each sample contained 15-20 cores and represented 25 acres. The samples from Sharkey, Leflore, Coahoma, Tunica, Quitman, Bolivar, Tallahatchie, and Desoto counties were divided and a portion was run in the elutriator for nematode extraction and another portion sent for nutrient analysis. In the 2001 survey, threshold levels for reniform were considered 5000 nematodes/pt soil. Threshold levels for the root-knot nematode were considered to be 350 nematodes/pt soil. In the 2001 Leflore county survey, 39% of fields were infested with reniform, with 22% over threshold. Root-knot infestation in Leflore county was 20%, with 12% being over threshold. 2001 Leflore county results can be compared with the 1986 survey where these fields showed 26% reniform infestation and 32% root-knot infestation. Coahoma county results for 2001 show reniform infestation at 11%, with 2% over threshold. Root-knot infestation from the same fields was 24%, with 18% over threshold. The 1986 survey for Coahoma county showed 19% infestation with reniform and 26% infestation with root-knot. Sharkey county infestation of reniform was 85%, of which 61% were over threshold. The root-knot infestation for Sharkey county was just 2% with none over threshold for 2001. In 1986, the Sharkey survey indicated 72% of fields infested with reniform and 26% with root-knot. The comparative results from the 2001 and 1986 surveys show both a shift from root-knot to reniform and increasing infestation rates. Other counties tested in 2001, not compared to the 1986 survey, were Tunica, Quitman, Bolivar, Tallahatchie and Desoto. Tunica county had 6% reniform infestation, with none over threshold. Root-knot infestation for Tunica county was at 12%, with 4% over threshold. Quitman county showed 29% reniform infestation, with 2% over threshold. Root-knot infestation was 8% with 1% over threshold in Quitman county. Bolivar County infestation of reniform was 38%, with only 2% over threshold. Bolivar County root-knot was only 4%, with 2% over threshold. Tallahatchie county reniform infestation was 76%, with 8% over threshold. Root-knot infestation in Tallahatchie county was 4%, with 2% over threshold. Desoto county reniform infestation was at 3%, with none over threshold. Root-knot infestation in Desoto county was 26%, with 11% over threshold. From data on nutrient levels, there is no apparent relation between selected nutrients and nematode levels. The survey will continue to identify and monitor densities of the major cotton parasitic nematodes in other Mississippi counties.