

CURRENT INCIDENCE OF PLANT PARASITIC NEMATODES IN LOUISIANA

C. Overstreet and E.C. McGawley

Extension and Research Nematologist, respectively
LSU Agricultural Center
Baton Rouge, LA

Abstract

A nematode survey was conducted during 1994 and 1995 throughout the cotton producing parishes in Louisiana. Reniform nematode was widespread throughout the state and found in 56% of the 200 samples collected. Root-knot nematode was found in 27% of the samples. The highest incidence for any nematode was with spiral nematode which was present 68% of the time. Acreage estimated to be infested with the reniform nematode is 510,00 acres while root-knot is present in 189,000 acres.

Introduction

Cotton acreage has increased during the past several years in a number of parishes in Louisiana. Although both the reniform and root-knot nematodes are known to be serious pests in some parishes, their occurrence was not as well known in many parishes. This study was undertaken to better determine the incidence of plant-parasitic nematodes in parishes where cotton is grown in Louisiana.

Materials and Methods

The ten major parishes that produce cotton were surveyed in 1994 and ten additional parishes were surveyed during 1995. A total of ten samples were collected from each parish representing major areas and soil types within that parish. Fields were randomly selected within each parish. The samples were collected in November and December during both years. A total of 20 soil cores to a depth of 6-8 inches was taken from a 2.5 acre within each field. These samples were then thoroughly mixed and divided into 2 equal portions. One fraction of the soil was used for nematode extraction to determine the types and population levels present within a field. The other soil fraction was added to a 6 inch pot in which cotton seedlings were planted. These plants will be maintained in the greenhouse for further use with species identification.

Results and Discussion

At least 12 genera of nematodes were found in this survey that are plant-parasitic. Spiral nematode was the most prevalent nematode being found in 68% of the samples. Root-knot and reniform nematodes were found widely distributed throughout the cotton growing parishes.

Reniform nematode was more prevalent than root-knot in most parishes (Tables 1 and 2). Reniform nematode was found in 56% of the samples and root-knot in 27%. The percentage of other nematodes found in the survey were lesion at 23%; stunt at 38%; ring at 4%; lance at 28%; dagger at 2%; stubby-root at 14%; and pin at 7%.

When incidence was compared with acreage in each parish, estimates of cotton acreage infested with the reniform nematode was 510,000 acres and 189,000 for root-knot nematode. These estimates indicate the seriousness of nematodes to cotton production in Louisiana.

Acknowledgements

We give special thanks to John Harris, Carol Pinnell-Alison, Glen Daniels, Mike Rome, J. Stevens, Don Weston, Marion Farris, Myrl Sistrunk, David Neal, Robert Goodson, Carlos Smith, Joe Don Powell, Gary Wilson, Rodney Houston, Charlie Johnson, Miles Brashier, and Keith Norman, County Agents, Louisiana Cooperative Extension Service for their assistance during the survey.

Table 1. Incidence of reniform and root-knot nematodes in parishes surveyed during 1994.

Parish	Root-knot	Reniform
Catahoula	0	2
Concordia	6	6
E. Carroll	3	4
Franklin	0	9
Madison	0	8
Morehouse	3	9
Rapides	0	10
Richland	0	8
Tensas	3	1
W. Carroll	0	1

Ten samples taken in each parish.

Table 2. Incidence of reniform and root-knot nematodes in parishes surveyed during 1995.

Parish	Root-knot	Reniform
Avoyelles	1	10
Bossier	7	0
Caddo	9	1
Caldwell	3	9
Grant	0	9
Natchitoches	3	8
Ouachita	2	7
Pointe Coupee	4	4
Red River	6	2
St. Landry	4	5

Ten samples taken in each parish.