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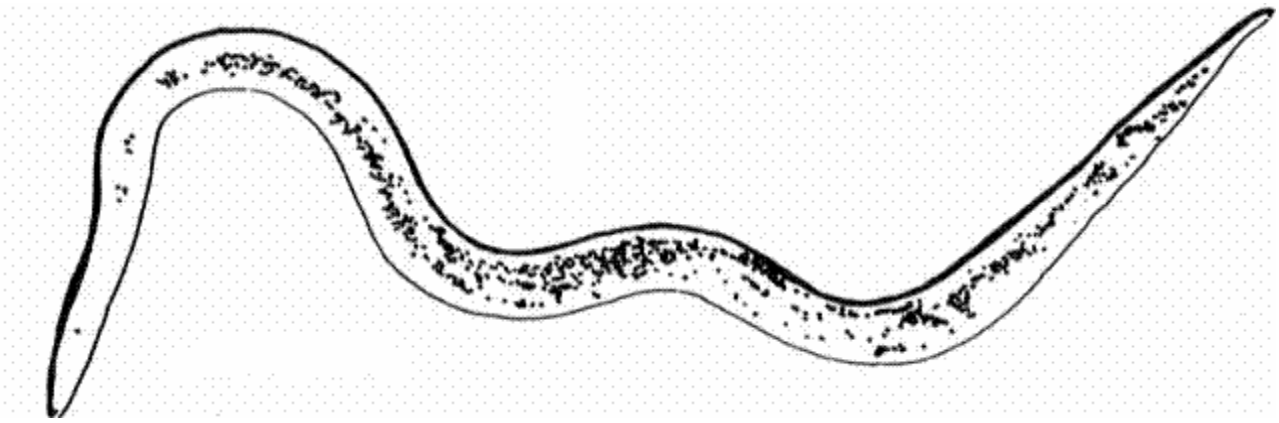
NEMATODE DIAGNOSTIC CLINIC
2005 Summary Report



UofA
UNIVERSITY OF ARKANSAS
DIVISION OF AGRICULTURE
Cooperative Extension Service

NEMATODE DIAGNOSTIC CLINIC
2005 Summary Report

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Front page photo: http://rbcm1.rbcm.gov.bc.ca/nh_papers/mud/mud.html

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2005 Summary Report

The Arkansas Nematode Diagnostic Clinic processed 3,811 soil samples from Arkansas producers in 2005 (Table 1). Another 61 samples from cotton and soybean verification fields are included in this report since these samples actually came from producers' fields. An additional 3,046 samples from research plots and on-farm demonstrations conducted by research and extension personnel were also processed. **This report summarizes only the producer-submitted samples and those from the verification fields.**

The majority (93%) of the soil samples were again from cotton fields (Figure 1). Bayer Crop Science continues to sponsor a sampling program which encourages nematode sampling in cotton. There continues to be an increased awareness among those in the cotton industry of the potential damage the root-knot and reniform nematodes can cause in this crop. The number of samples submitted from soybean fields, although low, was up 35% from 2004. The number of samples submitted for nematode assay from home gardens, turf, ornamentals, and other crops was up 50%.

The reniform nematode was detected in Phillips County for the first time in 2005. This nematode has now been detected in Ashley, Chicot, Craighead, Desha, Drew, Jefferson, Lincoln, Lonoke, Mississippi, Monroe, Phillips, Poinsett, and Pulaski counties. Reniform nematodes were detected in 247 samples (Tables 2 and 3) and 245 of these samples were from cotton. Although only 6% of all samples submitted by Arkansas producers were infested with this nematode (Figure 2), 47% had an infestation level above the economic threshold for cotton of 5,000 per pint of soil (Tables 2 and 3).

The root-knot nematode continues to be the most widespread of the economic nematode species in Arkansas. Root-knot was found in 38% (1,458) of all samples submitted in 2005 (Table 2, Figure 2). Although the incidence and severity of root-knot nematodes are most apparent in counties with high cotton acreage (Table 4), this nematode is found across the state in grasses, shrubs, home gardens, etc.

Soybean cyst nematode was detected in 67 of the 224 samples submitted from soybean fields in 2005 (Table 2, Figure 2). Race assays were successfully conducted on 18 of these samples (another 16 pending). The predominant soybean cyst nematode races this year were race 5 and race 6 (Table 5).
The Nematode Diagnostic Clinic provided white tip nematode assays for 92 rice seed lots during 2005. This service is available to producers and brokers who ship Arkansas rice to certain foreign markets where the white tip nematode (*Aphelenchoides besseyi)* is listed as a quarantined pest. No white tip nematodes were detected in grain for shipment. An additional 809 rice samples were assayed for *A. besseyi* and *Ditylenchus angustus.* These samples were a part of an APHIS-sponsored survey of nematodes in rice in commercial fields in Arkansas. This survey was a cooperative effort between Dr. Rick Cartwright, Dr. Chuck Wilson, and the Nematode Diagnostic Clinic. *A. besseyi* was the only nematode detected in this survey and it was detected in only one sample.

The Clinic also provided assays for 12 samples of shavings from cedar logs for the pinewood nematode (*Bursaphelenchus xylophilus*). This certification was required to enable shipment of cedar products to foreign markets where this nematode is listed as a quarantined pest.

Table 1. Number of samples submitted by county, 2005

Delta District			
Arkansas	7	Lawrence	2
Ashley	553	Lincoln	10
Chicot	44	Lonoke	300
Clay	110	Mississippi	690
Craighead	657	Monroe	3
Crittenden	31	Phillips	50
Cross	4	Poinsett	333
Desha	390	Randolph	1
Greene	69	St. Francis	44
Jackson	2	Woodruff	8
Jefferson	176		
Ozark District			
Crawford	5	Logan	2
Johnson	4	Washington	1
Ouachita District			
Garland	1	Perry	1
Howard	1	Pulaski	20
Lafayette	40	Union	1
Little River	1		

Table 2. Frequency of detection of root-knot, reniform, and soybean cyst nematode, 2005

Nematode	Samples[1]	Above Threshold[2]	Percent Above Threshold
Root-knot	1,458	1,184	81
Reniform	247	116	47
Soybean cyst[3]	67	35	52

[1] Total number of samples submitted with nematodes detected.

[2] Threshold levels for cotton: Root-knot = 250 per pint of soil, Reniform = 5,000 per pint of soil, Soybean-cyst = 500 cyst nematode eggs per pint of soil.

[3] The number of samples with soybean cyst includes those samples currently in soybeans plus those that were in rotation in 2005.

Table 3. Reniform nematode incidence and severity in cotton-producing counties, 2005

	Number of Samples		**Incidence and Severity[1]**	
County	**Total**	**With Reniform**	**Above Threshold**	**% Above Threshold**
Ashley	553	151	73	48
Chicot	44	7	3	43
Craighead	657	1	0	0
Desha	390	23	11	48
Jefferson	176	42	18	43
Lonoke	300	14	8	57
Mississippi	690	5	2	40
Monroe	3	2	0	0
Phillips	50	2	1	50

[1] Number and percent of samples received containing the reniform nematode at populations above economic threshold (5,000 nematodes per pint of soil).

Table 4. Root-knot nematode incidence and severity in cotton-producing counties, 2005

	Number of Samples		Incidence and Severity[1]	
County	**Total**	**With RKN**	**Above Threshold**	**% Above threshold**
Ashley	553	316	291	53
Chicot	44	32	27	61
Clay	110	66	55	50
Craighead	657	226	166	25
Crittenden	31	2	0	0
Desha	390	236	188	48
Greene	69	38	24	35
Jackson	2	1	0	0
Jefferson	176	63	48	27
Lafayette	40	26	20	50
Lincoln	10	3	1	10
Lonoke	300	47	39	13
Mississippi	690	260	229	33
Phillips	50	23	20	40
Poinsett	333	97	55	17
St. Francis	44	2	1	2
Woodruff	8	2	2	25

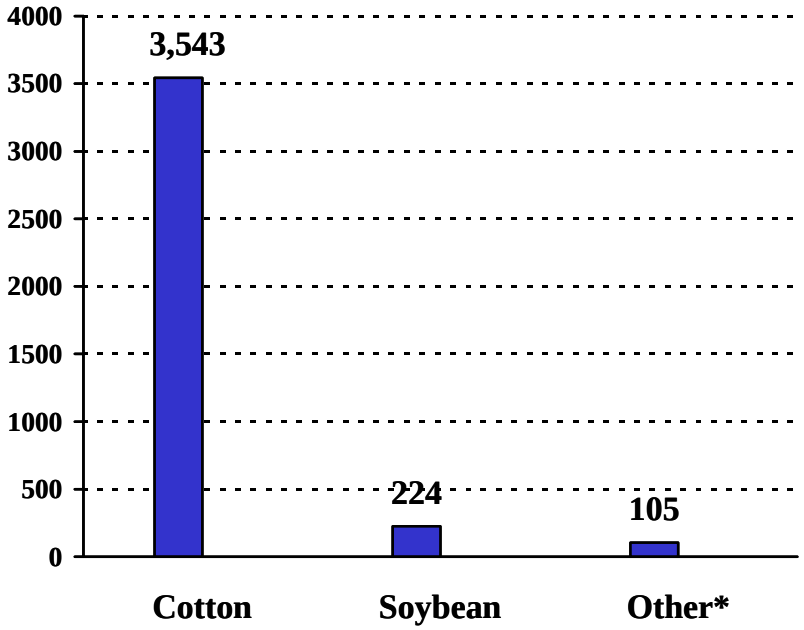
[1] Number and percent of samples received containing the root-knot nematode at populations above economic threshold (250 per pint of soil).

Table 5. Soybean cyst nematode races, 2005[1]

Race	Number of Samples
2	5
5	6
6	6
14	1
Unsuccessful	1
Pending	16
Total	**35**

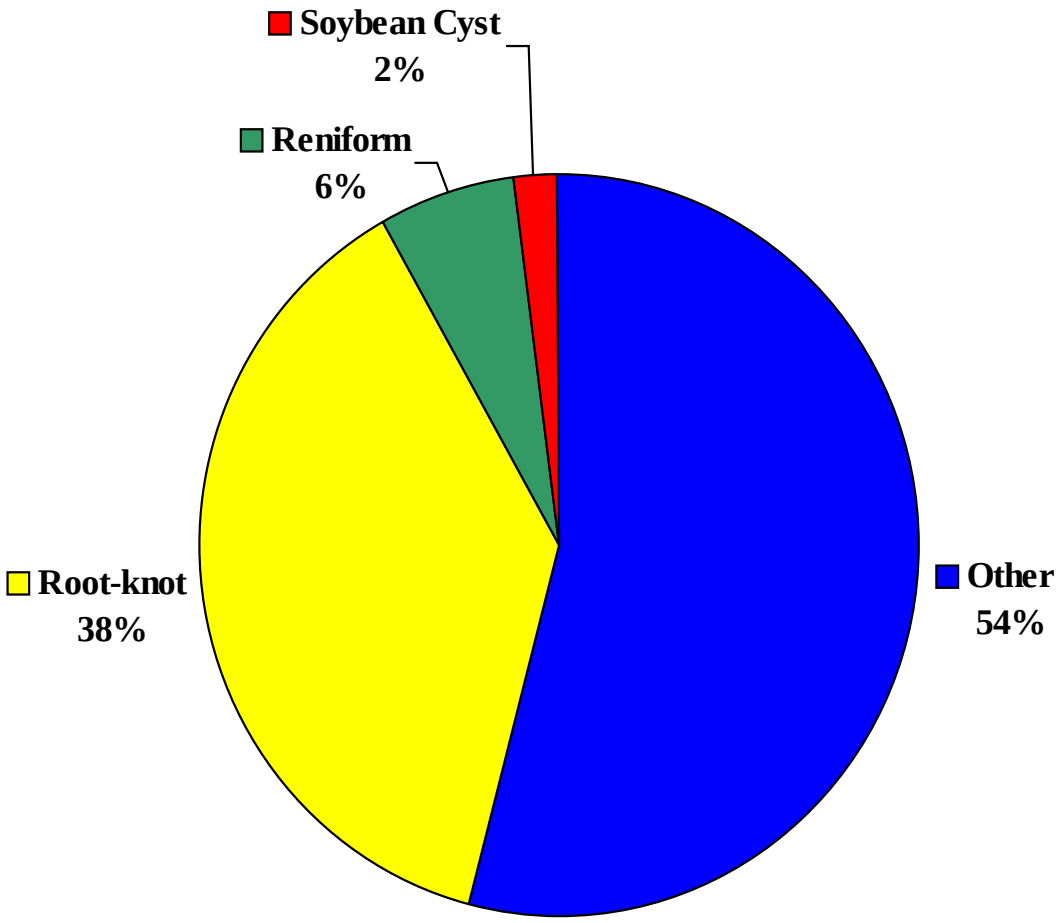
[1] This table includes races determined from verification fields. It was decided to include them in this table since these are producer fields.

Figure 1. Total Number of Samples Received by Crop, 2005



*Other includes samples from turf, home gardens, nurseries, etc.

Figure 2. Economic Nematode Species, 2005
(Percent of Grower Samples, All Crops)



Total Samples = 3,872