DIVISION OF AGRICULTURE
RESEARCH & EXTENSION
University of Arkansas System

ARKANSAS NEMATODE DIAGNOSTIC LABORATORY

2024 ANNUAL REPORT

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The Arkansas Nematode Diagnostic Laboratory is located on the campus of the University of Arkansas System Southwest Research and Extension Center, Hope, AR. Plant-parasitic nematodes are an economically important pest that affects many row crops, horticultural crops, golf courses, and trees and shrubs in Arkansas. The Arkansas Nematode Diagnostic Laboratory offers bioassay and quantification services. The nematode assay samples are submitted from various sources, including county extension agents, agricultural consultants, commercial operations, research and extension faculty, industry representatives, and regulatory inspectors.

A total of 2,642 (4,444 vials) samples were processed in 2024 (Fig. 1). Soil samples were received from 15 states other than Arkansas, which is a 114% increase in out-of-state samples since last year (Fig. 2). Within Arkansas, samples were received from 36 of the 75 counties in the state (Fig. 3). The majority of the samples received were from agronomic crops. The largest percentage of samples processed were from soybean (35%), followed by cotton (20%) and corn (15%); horticultural crops, turf, and regulatory samples made up the remainder of the samples (30%) (Fig. 4). This year, most of the samples were received in the fourth quarter, which is typical. (Fig. 5). However, it should be noted that the volume of samples received in this quarter (1,511; 58% of total samples) was much higher than the same period in the previous year (903; 37% of total samples). Although this did increase turnaround time, we were still able to complete all reporting for the previous year prior to January 31, which is always our goal. Sample distribution was uneven among quarters one, two, three, and four at 5%, 19%, 18%, and 58%, respectively. Samples were processed on 26 different host species or categories and 17 genera of nematode were detected (Table 1). Greenhouse screening for root-knot resistance was provided for 453 pots of soybean.

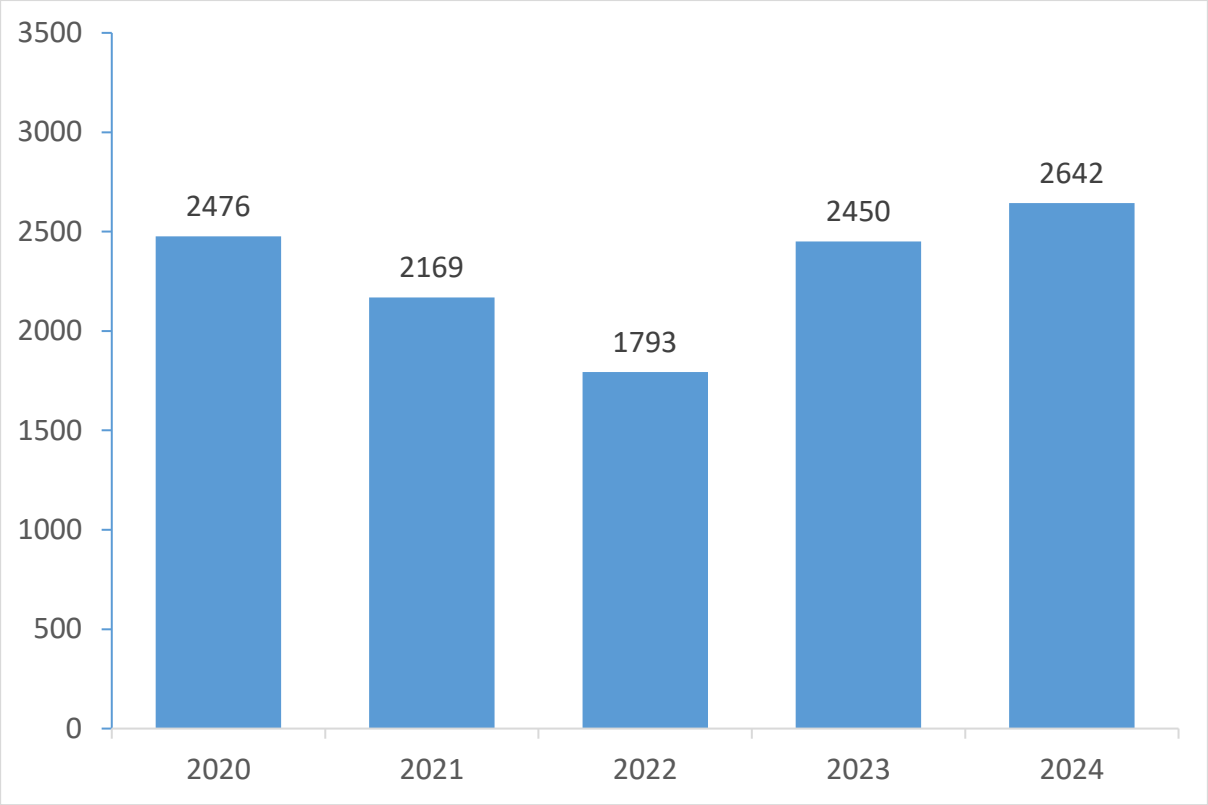
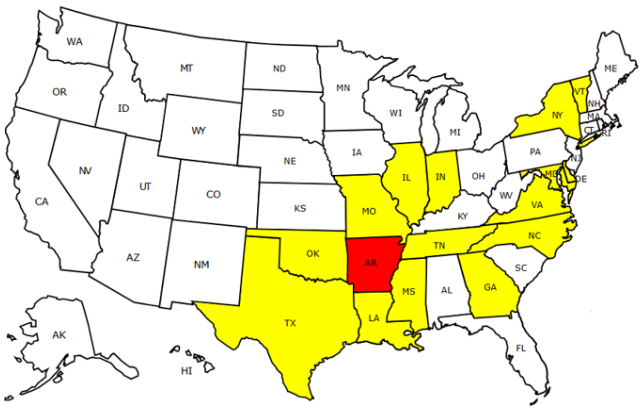


Figure 1. Nematode samples processed by Arkansas Nematode Diagnostic Laboratory, 2020-2024.

State	Samples Received	State	Samples Received
Arkansas	1,753	Mississippi	206
Delaware	51	North Carolina	63
Georgia	30	New York	2
Illinois	6	Oklahoma	10
Indiana	14	Tennessee	235
Louisiana	109	Texas	3
Maryland	16	Virginia	5
Missouri	135	Vermont	4

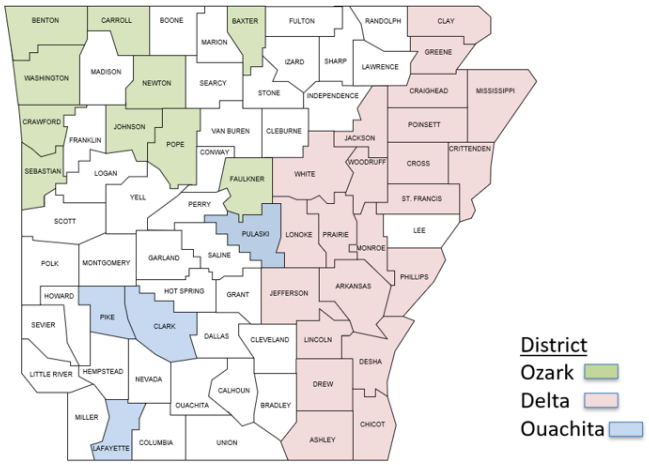


From Arkansas: 66%

From Other States: 34%

Figure 2. Nematode samples processed by state, Arkansas Nematode Diagnostic Laboratory, 2024.

County	No.	County	No.
Arkansas	35	Johnson	40
Ashley	23	Lafayette	1
Baxter	2	Lincoln	24
Benton	5	Lonoke	40
Carroll	1	Mississippi	10
Chicot	83	Monroe	4
Clark	1	Newton	1
Clay	17	Phillips	9
Craighead	9	Pike	5
Crawford	15	Poinsett	17
Crittenden	24	Pope	16
Cross	4	Prairie	22
Desha	23	Pulaski	6
Drew	9	Sebastian	3
Faulkner	9	St. Francis	4
Greene	4	Washington	6
Jackson	10	White	82
Jefferson	39	Woodruff	40



Samples were submitted from 36 of 75 counties in 2024

Figure. 3. Nematode samples submitted by county, Arkansas Nematode Diagnostic Laboratory, 2024 (excludes phytosanitary and UADA research samples).

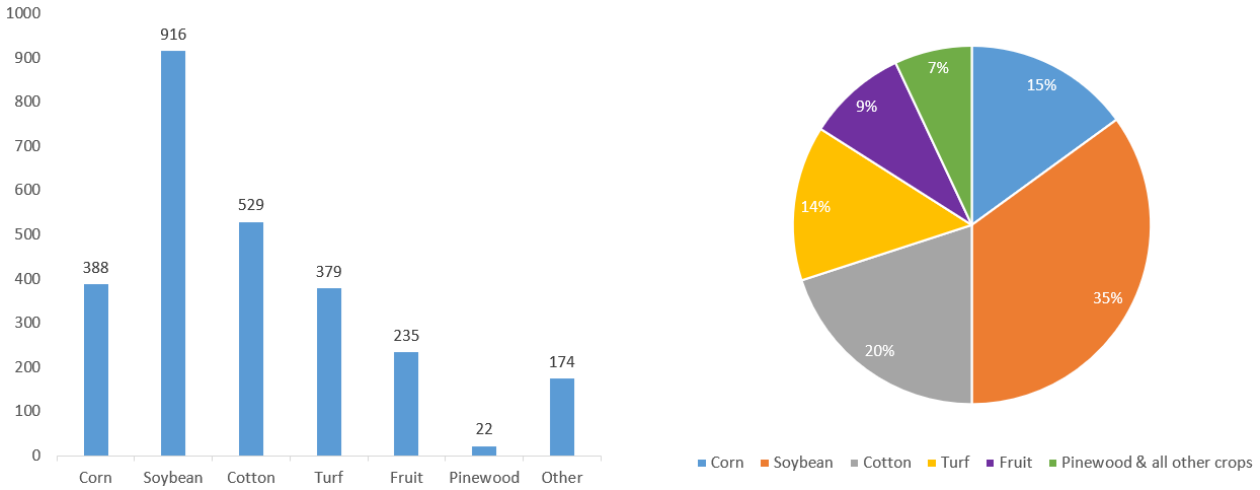


Figure 4. Number and percentage of nematode samples by crop, Arkansas Nematode Diagnostic Laboratory, 2024.

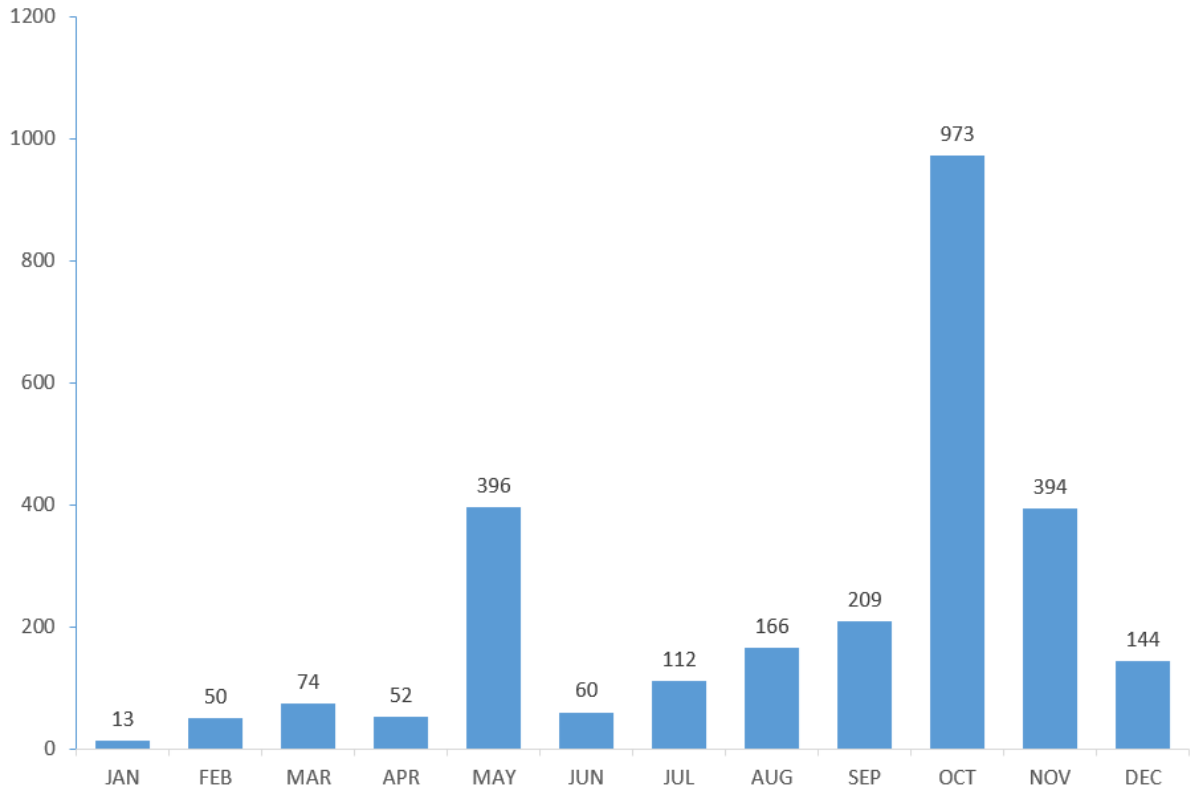


Figure 5. Nematode samples received by month, Arkansas Nematode Diagnostic Laboratory, 2024.

Table 1. Number of samples and diagnosis by host and type, Arkansas Nematode Diagnostic Laboratory, 2024.		
Baldcypress (*Taxodium* sp./spp.) – 26		
	No Nematode Found	26
Bentgrass (*Agrostis* sp./spp.) – 9		
	Free Living	9
	Lance (*Hoplolaimus* sp./spp.)	8
	Ring (*Mesocriconema* sp./spp.)	7
	Spiral (*Helicotylenchus* sp./spp. and *Scutellonema* sp./spp.)	1
	Stunt (*Tylenchorhynchus* sp./spp.)	6
Bermudagrass (*Cynodon dactylon*) – 83		
	Free Living	83
	Lance (*Hoplolaimus* sp./spp.)	2
	Lesion	8
	Needle (Longidorus sp./spp.)	7
	Ring (*Mesocriconema* sp./spp.)	49
	Root-knot (*Meloidogyne* sp./spp.)	24
	Sheath (*Hemicycliophora* sp./spp.)	9
	Spiral (*Helicotylenchus* sp./spp. and *Scutellonema* sp./spp.)	22
	Sting (*Belonolaimus* sp./spp.)	18
	Stubby-root (*Paratrichodorus* sp./spp.)	17

Blackberry (*Rubus* sp./spp) – 165		
	Dagger (*Xiphenema* sp./spp.)	157
	Free Living	164
	Lance (*Hoplolaimus* sp./spp.)	3
	Lesion (*Pratylenchus* sp./spp.)	136
	Ring (Mesocriconema sp./spp.)	4
	Root-knot (*Meloidogyne* sp./spp.)	7
	Sheath (*Hemicycliophora* sp./spp.)	5
	Spiral (*Helicotylenchus* sp./spp. and *Scutellonema* sp./spp.)	137
	Stubby-root (*Paratrichodorus* sp./spp.)	72
	Stunt (*Tylenchorhynchus* sp./spp.)	31
Blueberry (*Vaccinium* sp./spp.) – 3		
	Dagger (*Xiphenema* sp./spp.)	1
	Free Living	3
	Lesion (*Pratylenchus* sp./spp.)	1
	Pin (Paratylenchus sp./spp)	1
	Spiral (*Helicotylenchus* sp./spp. and *Scutellonema* sp./spp.)	1
	Stubby-root (*Paratrichodorus* sp./spp.)	1
Corn (*Zea mays*) – 388		
	Cyst (*Heterodera* sp./spp.)	91
	Free Living	387
	Lance (*Hoplolaimus* sp./spp.)	7
	Lesion (*Pratylenchus* sp./spp.)	277
	Needle (Longidorus sp./spp.)	5
	Reniform (*Rotylenchulus reniformis*)	8
	Root-knot (*Meloidogyne* sp./spp.)	193
	Spiral (*Helicotylenchus* sp./spp. and *Scutellonema* sp./spp.)	36
	Stubby-root (*Paratrichodorus* sp./spp.)	126
	Stunt (*Tylenchorhynchus* sp./spp.)	278
Cotton (*Gossypium hirsutum*) – 529		
	Cyst (*Heterodera* sp./spp.)	34
	Dagger (*Xiphenema* sp./spp.)	50
	Free Living	527
	Lance (*Hoplolaimus* sp./spp.)	38
	Lesion (*Pratylenchus* sp./spp.)	99
	Needle (Longidorus sp./spp.)	7
	Pin (Paratylenchus sp./spp)	2
	Reniform (*Rotylenchulus reniformis*)	211
	Ring (*Mesocriconema* sp./spp.)	6
	Root-knot (*Meloidogyne* sp./spp.)	181
	Sheath (*Hemicycliophora* sp./spp.)	20
	Sheathoid (*Hemicriconemoides* sp./spp.)	1
	Spiral (*Helicotylenchus* sp./spp. and *Scutellonema* sp./spp.)	128

	Sting (Belonolaimus sp./spp.)	1
	Stubby-root (*Paratrichodorus* sp./spp.)	190
	Stunt (*Tylenchorhynchus* sp./spp.)	53
Cover crop (species not identified) – 30		
	Dagger (*Xiphenema* sp./spp.)	5
	Lesion (*Pratylenchus* sp./spp.)	22
	Spiral (*Helicotylenchus* sp./spp. and *Scutellonema* sp./spp.)	12
	Stunt (*Tylenchorhynchus* sp./spp.)	4
	Free Living	30
Eastern Red Cedar (*Juniperus virginiana*) – 20		
	No Nematode Found	20
Fallow – 34		
	Cyst (*Heterodera* sp./spp.)	2
	Dagger (*Xiphenema* sp./spp.)	9
	Free Living	33
	Lance (*Hoplolaimus* sp./spp.)	8
	Lesion (*Pratylenchus* sp./spp.)	23
	Reniform (Rotylenchulus reniformis)	2
	Ring (*Mesocriconema* sp./spp.)	5
	Spiral (*Helicotylenchus* sp./spp. and *Scutellonema* sp./spp.)	19
	Stunt (*Tylenchorhynchus* sp./spp.)	8
Garlic (*Allium sativum*) – 5		
	Free Living	1
	No Nematode Found	4
Grape (*Vitis* sp./spp.) – 5		
	Dagger (*Xiphenema* sp./spp.)	2
	Free Living	5
	Lesion (*Pratylenchus* sp./spp.)	2
	Needle (*Longidorus* sp./spp.)	1
	Ring (*Mesocriconema* sp./spp.)	1
	Spiral (*Helicotylenchus* sp./spp. and *Scutellonema* sp./spp.)	4
	Stunt (*Tylenchorhynchus* sp./spp.)	1
Ornamental Nursery (species not identified) – 1		
	Ring (*Mesocriconema* sp./spp.)	1
Peanut (*Arachis hypogaea*) – 25		
	Cyst (*Heterodera* sp./spp.)	1
	Dagger (*Xiphenema* sp./spp.)	2
	Free Living	25
	Lesion (*Pratylenchus* sp./spp.)	9
	Reniform (*Rotylenchulus reniformis*)	20
	Ring (*Mesocriconema* sp./spp.)	8
	Root-knot (*Meloidogyne* sp./spp.)	3
	Spiral (*Helicotylenchus* sp./spp. and *Scutellonema* sp./spp.)	2
	Stubby-root (*Paratrichodorus* sp./spp.)	6
	Stunt (*Tylenchorhynchus* sp./spp.)	2
Pecan (*Carya illinoinensis*) – 1		

	Dagger (*Xiphenema* sp./spp.)	1
	Lance (*Hoplolaimus* sp./spp.)	1
	Free Living	1
	Stunt (*Tylenchorhynchus* sp./spp.)	1
Pumpkin (*Cucurbita pepo*) – 36		
	Free Living	36
Rice (*Oryza sativa*) – 9		
	Free Living	4
	Lance (*Hoplolaimus* sp./spp.)	1
	Lesion (*Pratylenchus* sp./spp.)	4
	Root-knot (*Meloidogyne* sp./spp.)	4
	Stubby-root (*Paratrichodorus* sp./spp.)	4
	Stunt (*Tylenchorhynchus* sp./spp.)	3
Soybean (*Heterodera glyclines*) – 916		
	Cyst (*Heterodera* sp./spp.)	229
	Dagger (*Xiphenema* sp./spp.)	65
	Free Living	907
	Lance (*Hoplolaimus* sp./spp.)	64
	Lesion (*Pratylenchus* sp./spp.)	536
	Needle *(Longidorus* sp./spp.)	23
	Pin (*Paratylenchus* sp./spp)	11
	Reniform (*Rotylenchulus reniformis*)	101
	Ring (Mesocriconema sp./spp.)	8
	Root-knot (*Meloidogyne* sp./spp.)	536
	Sheath (*Hemicycliophora* sp./spp.)	3
	Spiral (*Helicotylenchus* sp./spp. and *Scutellonema* sp./spp.)	252
	Sting (*Belonolaimus* sp./spp.)	1
	Stubby-root (*Paratrichodorus* sp./spp.)	332
	Stunt (*Tylenchorhynchus* sp./spp.)	359
Turfgrass, (species not identified) – 287		
	Dagger (*Xiphenema* sp./spp.)	1
	Free Living	284
	Lance (*Hoplolaimus* sp./spp.)	7
	Lesion (*Pratylenchus* sp./spp.)	2
	Needle (*Longidorus* sp./spp.)	9
	Ring (*Mesocriconema* sp./spp.)	74
	Root-knot (*Meloidogyne* sp./spp.)	27
	Sheath (*Hemicycliophora* sp./spp.)	10
	Sheathoid (*Hemicriconemoides* sp./spp.)	
	Spiral (*Helicotylenchus* sp./spp. and *Scutellonema* sp./spp.)	32
	Sting (*Belonolaimus* sp./spp.)	125
	Stubby-root (*Paratrichodorus* sp./spp.)	1
	Stunt (*Tylenchorhynchus* sp./spp.)	8
Vegetables (mixed species) – 3		
	Dagger (*Xiphenema* sp./spp.)	1
	Free Living	2
	Lance (*Hoplolaimus* sp./spp.)	1
	Root-knot (*Meloidogyne* sp./spp.)	1

	Spiral (*Helicotylenchus* sp./spp. and *Scutellonema* sp./spp.)	1
Wheat (*Triticum* sp./spp.) – 7		
	Free Living	7
	Lesion (*Pratylenchus* sp./spp.)	4
	Root-knot (*Meloidogyne* sp./spp.)	2
	Spiral (*Helicotylenchus* sp./spp. and *Scutellonema* sp./spp.)	2
	Stubby-root (*Paratrichodorus* sp./spp.)	1
	Stunt (*Tylenchorhynchus* sp./spp.)	2
Crop Not Specified – 60		
	Cyst *(Heterodera sp./spp.)*	36
	Dagger (Xiphenema sp./spp.)	6
	Free Living	59
	Lance (*Hoplolaimus* sp./spp.)	19
	Lesion (*Pratylenchus* sp./spp.)	44
	Root-knot (*Meloidogyne* sp./spp.)	23
	Spiral (Helicotylenchus sp./spp. and Scutellonema sp./spp.)	34
	Sting (Belonolaimus sp./spp.)	1
	Stubby-root (*Paratrichodorus* sp./spp.)	22
	Stunt (*Tylenchorhynchus* sp./spp.)	27

In Memoriam

In loving memory of Amanda Greer, an exceptional colleague and valued member of the UADA team, who passed away on February 19, 2025. Amanda served as Lab Manager/Diagnostician/Instructor at the Arkansas Nematode Diagnostic Laboratory from 2018-2025. We are grateful for her dedication to excellence, service to the lab clientele, and commitment to the people of Arkansas. She will be deeply missed.