

# Importance of northern root-knot and lesion nematodes for Florida strawberries

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## Summary

In recent years several “new” nematodes have been detected in Florida’s strawberry fields, including the root-knot nematode (*Meloidogyne hapla*) and the root-lesion nematode (*Pratylenchus penetrans*). These nematodes are believed to have been introduced into the state on strawberry transplant material from nurseries in more temperate climates. At the moment, the distribution of these nematodes in Florida is unknown. In this study we screened strawberry transplant material from 13 different nurseries for root-knot and root-lesion nematodes. In a field survey conducted during the 2018-2019 growing season, we determined the abundance of various plant-parasitic nematodes on 20 farms with nematode problems. None of the 54 different shipments of strawberry transplants were positive for root-knot nematode infestation; however, root-lesion nematode was detected in root tissue from 20.4% of the shipments. In the field survey, sting nematode, root-knot nematode, and stubby-root nematode were detected in soil from nearly half of the farms that were surveyed.

## Methods

### Transplant Screening

Strawberry nursery transplant material was collected from 13 different nurseries from 54 different shipments from California, North Carolina, Oregon, Washington, Idaho, Ontario, and Nova Scotia. From these shipments, 25 individual transplants were collected from five arbitrarily selected boxes within a shipment. Transplants were inspected for root galling and endoparasitic nematodes were extracted from

root tissue using a modified Baermann pan technique.

### Field Survey

Soil samples were collected from farms with a history of nematode infestation or where nematode problems arose during the growing season. Samples from the Gulf Coast Research and Education Center Pathology Diagnostic Laboratory were also included in the survey. Nematodes were extracted from soil samples using a modified Baermann pan technique.



**Figure 1** – Severe nematode damage in a sprinkler row that did not receive soil fumigation.

## Results

### Transplant Screening

Root-knot nematode was not detected in any of the strawberry transplant material collected from the 13 different nurseries. Root-lesion nematode was detected in root tissue from 20.4% of the 54 shipments.

### Field Survey

The survey included soil collected from 20 strawberry fields with a history of nematode infestation, or where nematode problems arose during the growing season (Table 1). Sting nematode was detected in 40.0% of the farms, root-knot nematode was detected in 50.0% of the farms, root-lesion nematode was detected in 5.0% of the farms, and stubby-root nematode was detected in 45.5% of the farms.

**Table 1** – Plant-parasitic nematodes in soil samples collected from farms with a history of nematode infestation or where nematode problems arose during the 2018 – 2019 winter strawberry growing season in Florida.

Crop	Nematodes per 200 mL soil			
	Sting Nematode	Root-Knot Nematode	Root-Lesion Nematode	Stubby-Root Nematode
Farm 1	1	5	0	0
Farm 7	0	8343	0	0
Farm 8	0	852	0	0
Farm 14	94	0	0	0
Farm 15	13	126	0	6
Farm 16	31	0	0	0
Farm 17	0	86	0	3
Farm 18	0	1	1	1
Farm 19	0	0	0	23
Farm 20	2	10	0	8
Farm 21	26	0	0	1
Farm 22	206	0	0	0
Farm 23	0	1817	0	0
Farm 24	0	4	0	10
Farm 25	0	0	0	15
Farm 26	0	0	0	14
Farm 27	0	0	0	0
Farm 28	27	0	0	0
Farm 29	0	1817	0	0
Farm 30	0	0	0	0

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