The Guava root-knot nematode- A new pest in Louisiana

Charles Overstreet | 7/16/2018 7:43:02 PM

The guava root-knot nematode (*Meloidogyne enterolobii*) is considered to be the most damaging root-knot nematode in the world because of its wide host range, aggressiveness, and ability to overcome the resistance that has been developed against root-knot nematodes in many crops. Although this nematode was originally described from the Pacara earpod tree in China, it has been particularly damaging to guava orchards in Brazil. At the present time, it is thought to be very limited in distribution in Louisiana, occurring at only one location. In the likelihood that this nematode begins to spread or get introduced from other states (Florida, North and South Carolina) that have this nematode, our producers and gardeners need to know what to look for and what we know about this nematode.

Figure 1. Bumps, knots, and cracking of a sweetpotato storage root from the guava root-knot nematode. Egg masses of the nematodes visible inside the root on the right.

The guava root-knot nematode is very similar to our common Southern root-knot nematode. On very susceptible plants, expect to see very large galls associated with the roots with the guava nematode. However, the Southern root-knot nematode can produce some rather large galls on very susceptible plants that would make it difficult to distinguish between the two nematode types. Both nematodes can cause severe damage to plants, reducing yields and causing early death. Stunting, yellowing of the foliage and early wilting during drought are also typical symptoms of both nematodes. One of the best ways for producers or gardeners to recognize that the guava nematode is present is when resistant crops to the Southern root-knot nematode get seriously damaged. Crop varieties that have been developed to be resistant to our common root-knot rarely get more than a few small galls and plants do well in the presence of that nematode. If the guava root-knot nematode is present, large galls will be evident on these plants. In the case of sweetpotato, the storage roots are severely deformed, with large cracks and knots on the roots.

Figure 2. A tomato root with root-knot resistance has very little if any galling when in the presence of the Southern root-knot nematode. The susceptible tomato in the same bed was severely galled.

Figure 3. A tomato root severely galled by the guava root-knot nematode (photograph courtesy of Dr. Don Dixon in Florida).

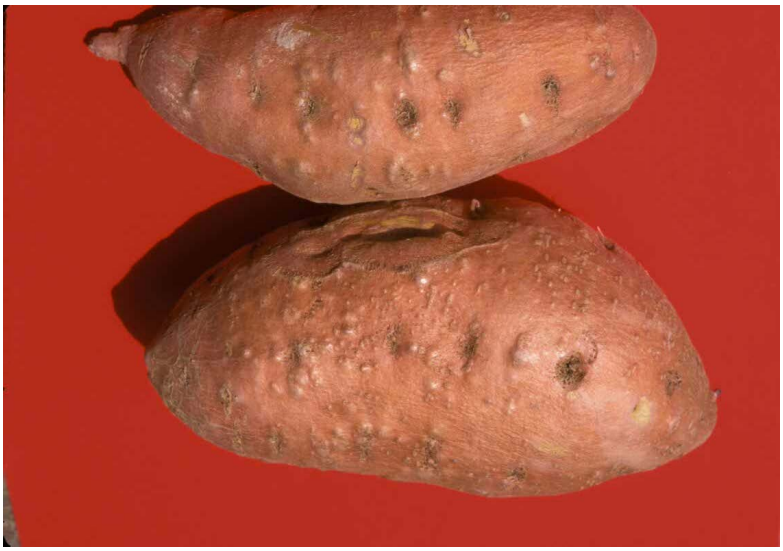

Figure 4. Small bumps and slight cracking from Southern root-knot nematode on sweetpotato. Few egg masses visible under each bump.

If this nematode develops into a problem in Louisiana, crop rotations and use of nematicides will be the primary methods used to manage this pest. Since there are differences reported in crops to this nematode, evaluations will be carried out to identify varieties that may be able to hold up against this pest.There are reports from various scientists about the host status of many plants to the guava root-knot nematode. Many plants are considered to be susceptible and some are considered resistant. Unfortunately, there are some conflicting results with several crops as to whether they are resistant or susceptible. This variability may be related to different populations of the nematode in different areas or differences in varieties. At this point we do not know much about the one that has recently been found in Louisiana except that it is particularly damaging to sweetpotato and tomato.

Table 1. Agronomic or cover crops and their reaction to the guava root-knot nematode

Susceptible crops	***Resistant crops***
Common vetch	Annual ryegrass
Cotton	Black Oats
Peanut*	Millet
Soybean	Corn
Sugarcane (S-R)**	Oats
Sunn Hemp (S-R)	Radishes
Sweetpotato	Rapeseed
Tobacco	Rice

Rye

Sorghum

Sunn Hemp (S-R)

Velvet bean

Wheat

*Peanut supports develop of females not eggs and is considered potential host in future.

**Crop has been reported susceptible or resistant and the reaction is likely due to different populations of the nematode or different varieties.

Table 2. Vegetable crops and their reaction to the guava root-knot nematode

Susceptible crops	***Resistant crops***
Bell pepper	Broccoli (S-MR)
Broccoli (S-MR)*	Cabbage (S-R)
Celery	Carrot
Cabbage	Cauliflower
Chili pepper	Chive
Common bean	Garlic
Cowpea (S-R)	Leeks
Cucumber	Lettuce
Eggplant	Parsley
Garden beet	Thyme
Irish potato	
Mustard	
Okra	

Parsley

Squash (all types)

Sweet basil

Tomato

Watermelon

*Crop has been reported susceptible or resistant and the reaction is likely due to different populations of the nematode or different varieties.

Table 3. Horticultural or fruit crops and their reaction to the guava root-knot nematode

Susceptible crops	***Resistant crops***
Ajuga	Avocado
Albutilon	Chinaberry
Angelonia	Citrus
Banana	Croton
Bottlebrush	Eucalyptus
Brugmansia	Evening primrose
Butterfly bush	Firespike
Caladium	Hyacinth bean
Candle bush	Mulberry
Cape honeysuckle	Olive
Common ginger	Passion fruit
Crape myrtle	Pineapple
Fig	Pittosporum
Gardenia	Strawberry

Grape

Guava

Heavenly blue morning glory

Hibiscus

Jujube

Lantana

Ligustrum

Liriope

Luffa

Papaya

Pentas

Princess flower

Salvia

Willow

*Crop has been reported susceptible or resistant and the reaction is likely due to different populations of the nematode or different varieties.

Table 4. Weed plants and their reaction to the guava root-knot nematode

Susceptible crops	***Resistant crops***
American nightshade	Barnyard grass
Bristly hawkbit	Beggarweed
Bull nettle	Coffeeweed
Common purslane	Crabgrass
Cutleaf groundcherry	Evening primrose

Dichondra	Fall panicum
Ground cherry	Johnsongrass
Hairy beggarticks	Showy crotolaria
Hairy crabweed	Yellow foxtail
Morning glory	
Pokeweed	
Purple nutsedge	
Redroot pigweed	
Sicklepod	
Smooth pigweed	
Spiny amaranth	
Three-lobed morning glory	
Velevetleaf	
Wild cucumber	
Wild mustard	
Wild ponsettia	
Yellow nutsedge	

Rate This Article:

Have a question or comment about the information on this page?

Click here to contact us.

Innovate . Educate . Improve Lives

The LSU AgCenter and the LSU College of Agriculture

101 Efferson Hall
Baton Rouge, LA
70803
225-578-4161
225-578-4143
web@agcenter.lsu.edu

Quick Links

- Home
- Services
- About
- Producers
- Researchers
- Topics
- News & Events
- Our Offices
- Consumers
- 4-H

Latest News

106 Martin D. Woodin Hall
Baton Rouge, LA
70803