Diaprepes abbreviatus "the Apopka weevil", New Citrus Arthropod Pest Established in N Florida (and other related weevils)

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Citrus Root Weevils in FL

Native-

- Blue green citrus weevil

Non-Native:

- Fuller rose beetle
- White fringed weevil
- Twobanded Japanese weevil * here but?
- Apopka weevil – new but limited presently
- Little leaf notcher ^ - citrus but not here

Root Weevil Characteristics

- Most citrus weevils are non-native and subtropical in origin
- Adults feed on foliage, usually newer flush
- Larvae feed on and in roots – damage!
- Usually 1 generation/year
- Broad host plant ranges – 100’s of species

Root Weevil Characteristics

- Several species do not fly
- Several species, females only
- Easy to move around on machinery and plants
- Difficult to control:
  - Adults – foliar sprays
  - Larvae - parasitic nematodes best
    - Known as EPNs – entomophagous nematodes

Blue Green Citrus Root Weevils: Northern - *Pachnaeus opalus*, Southern - *P. litus*

North Florida is a Transition Zone

Only *P. opalus* here

Native

Hosts: citrus, peach, persimmon, etc.

Fuller Rose Beetle *Asynonychus godmani*

- Non-native species
- Females only
- 100’s of hosts

White Fringe Weevil
Naupactus sp.
(leucoloma, peregrinus)

- Non-native - 1930's - AL
- Two species, females only
- Hard to tell apart
- 100's of hosts

Little leaf Notcher- *Artipus floridanus*

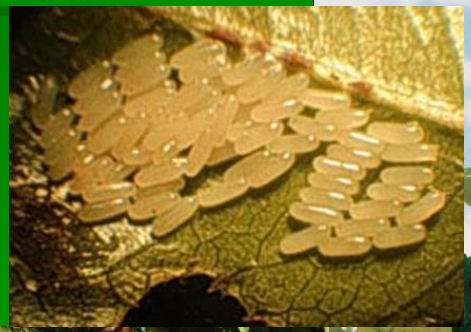
- Non-native in east central FL
- In citrus
- Minor pest

Twobanded Japanese Weevil, *Pseudocneorhinus bifasciatus*

- Present in FL and GA
- Northern species spreading South
- Hosts: crape myrtle, peach, other crops, many ornamental species
- Citrus?

Apopka Weevil, *Diaprepes abbreviatus*

- Native to Caribbean areas
- Large weevils, both sexes
- Colorful to gray and black
- 100's of hosts
- Citrus and ornamental nursery pest – central and south FL, TX, CA
- Interaction with Phytophora rootrot
- **I have samples of adults and larvae in alcohol for you to see here.**



Apopka Weevil Damage and Impact

Current Situation

- Found in Jefferson Cty nursery by R. Mizell
  - August 2018
  - Well established population present
- Adult trapping since first detection
- 100’s of adults have been seen or trapped
- Adults feeding on a number of plant species including weeds
- Larvae -high populations in pecan, apple and other hardwood seedlings

Current Situation

- FDACS has reviewed the situation as mandated
- A 6 acre area of potentially infested soil will be treated with EPNs when soil reaches 70-75 F
- Production of trees involved have been harvested, new plantings of seeds moved to other areas
- Monitoring continues
- Infestation likely limited to one nursery

What Should You Do Now Given the Low Probability of Spread?

- Scout your grove for adult beetles on citrus with new leaf flushes (yellowish color)
- Follow the citrus quarantine regs if buying new trees
- Ensure the citrus nursery has been, too
- It is unlikely that the weevils have spread elsewhere
- Do the same for Asian citrus psyllid!

Lessons:

- Climate change is real – affects agric. prod.
  - Longer growing seasons
  - Higher average temps, but > extremes
- Insects pests will exploit new opportunities and expand ranges, Be aware of the risk
- DO NOT circumvent the quarantines in place to protect you and everyone else
- If detect something new, get help on ID

Further Information

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Publication #EENY-024

Topics: Diaprepes Root Weevil | Giblin-Davis, Robin M | Weissling, Thomas J | Featured Creatures collection | Family: Curculionidae (snout beetles and true weevils) | Pena, Jorge E | Knapp, Joseph L, Jr.

Diaprepes Root Weevil, *Diaprepes abbreviatus* (Linnaeus) (Insecta: Coleoptera: Curculionidae)[1]

T. J. Weissling, J. E. Peña, R. M. Giblin-Davis, and J. L. Knapp, Jr.[2]

Field Diagnosis of Citrus Root Weevil Damage[1]

S. H. Futch, C. W. McCoy, J. H. Graham, L. W. Duncan, and H. N. Nigg[2]

Root weevils infest citrus groves throughout the citrus growing regions of Florida. Among the eight weevil species that have been identified in Florida citrus groves, five have some potential to cause economic problems for nurserymen and commercial growers. The most important weevil species are Diaprepes root weevil (*Diaprepes abbreviatus*), southern blue-green citrus root weevil (*Pachnaeus litus*), and the blue-green citrus root weevil (*Pachnaeus opalus*). The little leaf notcher (*Artipus floridanus*) and Fuller rose beetle (*Asynonychus godmani*) are of less concern, but may be locally important (Fig. 1). This paper will deal with Diaprepes and the blue-green root weevils because they are of major economic importance and frequently occur in citrus groves. Adult Diaprepes, the largest of the above-mentioned weevils, is approximately 1/3 to 3/4 inch in length, whereas the blue-green root weevils are slightly smaller, approximately 1/3 to 1/2 inch in length. Weevils feed on a wide range of plants estimated at more than 275 species.

Other Root Weevils In Citrus

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Publication #HS-868

Topics: Insect ID and Diagnostics | Horticultural Sciences | Citrus REC - Lake Alfred | Futch, Stephen Hubbard | McCoy, Clayton W | | Citrus Soil Insect Pests

A Guide to Soil Insect Pests Identification[1]

S. H. Futch, C. W. McCoy, and H. N. Nigg[2]

Soil provides a structure for a plant to anchor its roots and is a source of nutrition and water necessary for plant growth. Soil-inhabiting insects also utilize this substrate for part of or for their entire life. Although many insects are dependent on soil for food and shelter, only a few soil-borne insects such as weevils, ants, and termites are detrimental to the citrus tree.

Citrus Root Weevils

Citrus root weevils represent a complex of species that infest citrus trees and alternate host plants in Florida. The most common weevil species infesting citrus (Fig. 1), in order of greatest geographical distribution, are the blue-green citrus root weevils, Diaprepes root weevil, little leaf notcher and Fuller rose beetle with Diaprepes being the most injurious.

Different Subject: Warning About Use of Insecticides Without Known Pests Populations Present

- Citrus in North FL is not like Central and South FL production
  - Climate and temperature extremes
  - Growing season
  - Mix of cultivars
  - Pest profiles and response to C and T
- WHY Not: 1. obvious waste of money and 2. far worse in that it induces minor pests into major ones

Citrus Leafminer - moth

Pest of Flush, early season on; very occasional fruit pest

Control only on young trees

Use soap or oil

Mites – Rust and Red Mite

Scales: There are many!
Treat Same Way

- Cottony-cushion scale
- Red Scale
- Snow scale
- Control: target eggs and crawlers

Citrus Whitefly, *Dialeurodes citri*

Citrus Whitefly:

- Hosts: Citrus, Ligustrum, Gardenia
- Early-mid Season

Parasitic wasp

Fungus

Aphids in Citrus

- *Toxoptera citricida,* brown citrus aphid
  - Transmits – citrus tristeza closterovirus (CTV)
- *Toxoptera aurantii, black citrus aphid*
- *Aphis craccivora, cowpea aphid **
- *Aphis gossypii, cotton or melon aphid **
- *Aphis spiraecola, spirea aphid **

Misuse of Insecticides:

Arthropod Truism: aphids, mites, whiteflies, scales and leafminers are mostly induced pests! It has happened sooner or later in every crop around the world when insecticides are used extensively!

- Kills the natural enemies and nontargets
- Causes resistance in the pests
- Results in secondary pest outbreaks
- Wastes resources, increases risks

Final Comment: Recognize the Following

Citrus production in N. FL and S. GA is very different than in Central and S FL

- Climate
- Weather
- Phenology
- Pests
- Growing season
- Cultivars and mix different

Beware of the sources of your information!