TRI-OLOGY

A Publication of the Florida Department of Agriculture and Consumer Services, Division of Plant Industry
Charles H. Bronson, Commissioner — Richard D. Gaskalla, Division Director

DACS-P-00124 Volume 48, Number 6, November - December 2009 **Printer-Friendly PDF Version**

DPI's Bureau of Entomology, Nematology and Plant Pathology (the botany section is included in this bureau) produces TRI-OLOGY six times a year, covering two months of activity in each issue. The report includes detection activities from nursery plant inspections, routine and emergency program surveys, and requests for identification of plants and pests from the public. Samples are also occasionally sent from other states or countries for identification or diagnosis.

Highlights

Following are a few of the notable entries from this volume of TRI-OLOGY. These entries are reports of interesting plants or unusual pests, some of which may be problematic. See Section Reports for complete information.

***Vatiga illudens* (Drake) (cassava lace bug), a Continental United States record,** was found on *Manihot esculenta* (cassava), growing at a private residence. This species is one of two cassava lace bug species in the genus *Vatiga* that are economic pests of the crop in the Neotropics.

***Vatiga illudens* (cassava lace bug)**
Photograph courtesy of Michael C. Thomas, DPI

***Gowdeyana punctifera* (a soldier fly)**
Photograph courtesy of Gary J. Steck, DPI

***Gowdeyana punctifera* Malloch (a soldier fly), a State record,** was reared on bark beetle-infested avocado logs. The species is widespread in the United States and also occurs in Mexico. Larvae of this and most other known members of the soldier fly subfamily, Pachygastrinae, are found under bark of dead or dying trees. It has been stated that larvae are predaceous on bark beetles.

***Sobarocephala quadrimaculata* (Soos) (a clusiid fly), a County record,** was collected on a Multi-Lure trap in a citrus tree. Members of this genus are small yellow flies, and most species have distinctive patterns of black spots on the thorax and abdomen.

***Sobarocephala quadrimaculata* (a clusiid fly)**
Photograph courtesy of Gary J. Steck, DPI

***Bactericera cockerelli* (Sulc) (potato psyllid)** was intercepted on peppers from Mexico in a regulatory incident. This species has been a well-known pest for many decades, causing “psyllid

Section Reports

Our Mission...getting it done

The Division of Plant Industry is composed of five bureaus that employ over 600 scientists, environmental specialists, agricultural and laboratory technicians along with administrative and support staff. Our mission is to protect Florida’s native and commercially grown plants and the state’s apiary industry from harmful pests and diseases.

In 2009, new pests and diseases arrived while others spread to new counties. A few of the pests we encountered this year are listed below. More information about these and other pests is available from DPI Pest Alerts at http://www.fl-dpi.com/enpp/pi-pest-alert.html.

Spotted Wing Drosophila, *Drosophila suzukii*, was first found in Florida in rural

***Bactericera cockerelli* (potato psyllid, teneral adult)**
Photograph courtesy of Whitney Cranshaw, Colorado State University, bugwood.org.

yellows of potatoes." More recently, it has been found to transmit *Candidatus* Liberibacter psyllaurous, a pathogen that causes zebra chip disorder in potato tubers.

***Oeceoclades maculata* (Lindl.) Lindl. (monk orchid)** is one of the few weedy orchid species. In fact, for several years, it was listed as an invasive by the Florida Exotic Pest Plant Council (FLEPPC), but it has since been reevaluated and delisted.

***Oeceoclades maculata* (monk orchid)**
Photograph courtesy of Bob Upcavage, Atlas of Florida Vascular Plants

Root system of *Cucurbita moschata* 'La Estrella' heavily galled due to the infection induced by *Meloidogyne javanica* and *M. mayaguesis* Photograph courtesy of Mariana P. Beckman and Janete A. Brito, DPI

***Meloidogyne mayaguensis* Rammah & Hirschmann, 1988, the Guava root-knot nematode, a new County record,** was found infecting the root system of *Cucurbita moschata* 'La Estrella' (tropical pumpkin), in Manatee County. This nematode species induces severe root galling in many crops, including cucurbits. Several plant species have been found to be good hosts for this root-knot nematode species in Florida.

***Raffaelea lauricola* (laurel wilt),** was sampled on *Persea borbonia* (red bay) in a DPI research laboratory. Then isolates of the laurel wilt pathogen were used to inoculate containerized avocados (*Persea americana* Mill. 'Simmonds'). The inoculated avocados developed wilt symptoms, after which discolored vascular tissue was cultured in order to recover the fungal pathogen. The pathogenic fungus was recovered from all inoculated plants.

***Persea americana* (avocado) healthy leaves and fruit**
Photograph courtesy of Walter Hodge, Atlas of Florida Vascular Plants

Patti J. Anderson, Ph.D., managing editor
Wayne N. Dixon, Ph.D., editor

Acknowledgements:
The editors would like to acknowledge the work of all those who contributed information and explanations by providing data, photographs or text and by carefully reading early drafts. We also thank Scott Weinberg for his skillful use of web authoring tools to produce this report.

Hillsborough County in August 2009. Crops potentially at risk in Florida include thin-skinned fruits such strawberries, blackberries and blueberries.

Laurel Wilt Disease is a deadly disease of redbay (*Persea borbonia*) and other tree species in the laurel family (Lauraceae). The disease is caused by a fungus (*Raffaelea lauricola*) that is introduced into host trees by a non-native insect, the redbay ambrosia beetle (*Xyleborus glabratus*). More information is available from our Save The Guac Campaign.

Another **Asian Ambrosia Beetle, *Xyleborinus andrewesi*,** was recently collected in Ft. Myers, Florida from a sugar apple (*Annona squamosa*) tree. *Xyleborinus andrewesi* is widely distributed throughout the Old World tropics and has been reported from Hawaii, Cuba and Jamaica.

The **Africanized honey bee (AHB)** population has grown and will continue to grow in Florida due to its numerous pathways into the state and the lack of effective eradication products or techniques.

***Mikania micrantha*, mile-a-minute, Chinese creeper, or bittervine** is a serious agricultural and environmental weed and is included on the Noxious Weed Lists of the USDA and several states, including Florida. In November 2009, it was detected in Miami-Dade County for the first time in the Continental United States.

The **Ligurian leafhopper, *Eupteryx decemnotata*,** was

intercepted on topiary rosemary plants from California. This species has recently experienced rapid range expansion. It is a pest of herbs in the mint family including rosemary, sage, marjoram, catnip, mint and oregano.

We welcome your comments and suggestions for improvement on the new format of TRI-OLOGY. Please feel free to contact me at dixonw@doacs.state.fl.us or Dr. Patti Anderson at andersp1@doacs.state.fl.us and let us know.

Wayne N. Dixon, Ph.D., editor
Assistant Director, DPI

TRI-OLOGY

DACS-P-00124 Volume 48, Number 6, November - December 2009 Printer-Friendly PDF Version

Botany Section

Compiled by Richard E. Weaver, Jr., Ph.D., and Patti J. Anderson, Ph.D.

This section identifies plants for the Division of Plant Industry, as well as for other governmental agencies and private individuals. The Botany Section maintains a reference herbarium with over 10,000 plants and nearly 1,400 vials of seeds.

***Cardiospermum microcarpum* Kunth (heartseed),** a genus of 14 tropical and subtropical species. Sapindaceae. In Florida, heartseed is found in scattered counties from the Keys to Marion County in the north. The collection deposited in DPI's herbarium is the first vouchered specimen for Alachua County. The perennial, herbaceous vine climbs with tendrils and grows in a number of habitats, including moist woods, coastal shell mounds, roadsides and wasteplaces. The grooved stem can grow as long as 3 m. The bipinnate leaves are alternate, and the ovate leaflets have deeply incised margins. The tiny (2-3 mm) greenish-white flowers are held in axillary cymes with a pair of bracts modified into tendrils subtending them. The fruit is an inflated, subglobose, tri-lobed capsule, about 1 cm long, containing three small, black seeds, each with a white, heart-shaped spot that inspired the common name. Another species in this genus, *C. halicacabum*, with slightly larger flowers and fruit and an even more whimsical name, is called "love-in-a-puff." Members of this plant family often have dark (brown to black) seeds with pale hylar scars, marking the point at which the seed was attached in the fruit. Having a heart-shaped scar has made *C. microcarpum* and others in this genus valued as aphrodisiacs, or at least as jewelry beads, but some people focus on the interesting inflated fruit and call either species "balloon vine." The fruit of this vine can add interest to a garden, and some people eat the cooked leaves like spinach. This species has a wide-range of medical uses, including as an analgesic, a diuretic, and of course, as a treatment for ailments of the heart. (Alachua County; Herbarium Accession 10,749; Richard E. Weaver, DPI; 28 October 2009 and Alachua County; B2009-703; Scott Flamand, Buchholz High School and Andrea N. Christman, DEP; 20 December 2009.) (Austin 2004; Correll and Correll 1982; Hammer 2004; Mabberly 1997; www.eflora.org.)

***Chromolaena odorata* (L.) R. M. King & H. Robinson (Jack-in-the-bush, Siam weed, Christmas bush),** a genus of 165 species native to tropical and subtropical areas of the Americas; sometimes included in *Eupatorium*. Compositae/Asteraceae. This weedy species is native from Texas and Florida south throughout most of tropical America, but it has become naturalized widely in the Old World tropics as well. In Florida, it is common along hammock borders, on shell middens and in disturbed areas such as fields and roadsides in the southern peninsula, as well as in Polk and Hillsborough counties in the central part of the state. It is a thicket-forming, often scandent shrub, seldom more than 3 m tall when free-standing, but climbing to as much as 7 m when supported. The opposite, three-nerved, hairy or glabrous leaves are ovate to triangular with an acuminate apex, a broadly truncate base, and a coarsely toothed margin.

Sample Submissions

	Nov/ Dec	Year to Date
Samples Submitted by Other DPI Sections	1,175	9,152
Samples Submitted for Botanical Identification Only	94	697
Total Samples Submitted	1,269	9,849
Specimens Added to the Herbarium	70	507

***Cardiospermum microcarpum* (heartseed) fruit (above) and seeds (below)**
Photograph courtesy of Pat Howell, Atlas of Florida Vascular Plants

They are usually 8-13 cm long and 5-8 cm broad and have a medicinal odor when crushed. The cylindrical flower heads are about 1 cm long and are arranged in terminal and axillary, flat-topped clusters; they consist entirely of white, pale blue or pale lavender disc florets. The achenes are crowned with a pappus of finely barbed bristles, allowing them to be dispersed widely by the wind. Having wind-dispersed propagules is a characteristic of many weedy plants, and this one is no exception. The Jack-in-the-bush is a serious weed of 13 crops in more than 20 countries, from oil palms and tobacco in Malaysia to rubber, tea, teak and vegetables in India. On the other hand, it has proved an efficacious green manure in cassava cultivation and a nematode control in black pepper. (Miami-Dade County; B2009-707; Maria C. Acosta; 29 December 2009.) (Holm *et al*. 1977; www.florida.plantatlas.usf.edu.)

***Chrysoma pauciflosculosa* (Michx.) Greene (woody goldenrod),** a monospecific genus found in the southeastern United States. Compositae/Asteraceae. This species was once included with others we call "goldenrods," in the genus *Solidago*, but *Chrysoma pauciflosculosa* is different from the *Solidago* goldenrods in that it has a woody stem and shrubby growth habit and its leaves have a striking reticulate venation. These resinous, evergreen, up to 1 m tall shrubs, have leaf adaptations to conserve water and tolerate a salty habitat and are found near coastal dunes and in sandhill and scrub communities from Mississippi to North Carolina. In Florida, the species is restricted to the Panhandle where it is found in coastal counties from Escambia to Wakulla. The sessile, gray-green leaves with entire margins are alternate, oblanceolate to elliptic, and up to 6 cm long and 1.2 cm wide. The midvein is prominent on the underside of the leaf blade, but not on the upperside. The viscid inflorescence is a corymbiform array with cylindric involucres 2–2.5 mm long. The one to three fertile, pistillate ray florets have yellow corollas. The fertile, bisexual disc florets also have yellow corollas. The fruit, to 3 mm long, is a tan to brownish ribbed achene with a ring of 4-5 mm long bristles at the apex. This species flowers from late summer through autumn about the same time as "true" goldenrods. (Franklin County; B2009-639; Olga Garcia; 7 November 2009.) (Anderson and Creech 1975; Godfrey 1988; Lloyd 1901; www.eflora.org.)

***Garberia heterophylla* (W.Bartram) Merr. & F.Harper (garberia),** a monospecific genus found in Florida. Compositae/Asteraceae. This species is also a plant found in Florida scrub communities, but it is even more restricted geographically than *Chrysoma pauciflosculosa* (above). *Garberia* is endemic to peninsular Florida and has been documented in to grow from Clay County as far south as Highlands County, and from Brevard County as far west as Pinellas County. The more or less evergreen shrub can reach 2.5 m in height. The somewhat fleshy leaves are alternate (usually) and lack noticeable venation. The leaf blades, up to 3 cm long and 2 cm wide with rounded to somewhat retuse tips, are dotted with glands, have entire margins and are gray-green in color. Inflorescences of this species are flattened corymbs with heads of disc florets with pinkish, purple or occasionally white, 8-10 mm long corollas. The achene is about 7–8 mm long with 8-10 mm long bristles. Garberia's ability both to resprout and to produce increased numbers of seedlings after fire makes the species well-adapted to the fire-maintained scrub in which it is found, yet this endemic is listed as threatened by the state. Concern for its future is based on the very

***Chromolaena odorata* (Jack-in-the-bush)**
Photograph courtesy of Keith Bradley, Atlas of Florida Vascular Plants


***Chrysoma pauciflosculosa* (woody goldenrod)**
Photograph courtesy of Darryl Searcy, Wildflowers of the Escambia


***Chrysoma pauciflosculosa* (woody goldenrod) leaf surface, magnified**
Photograph courtesy of Patti J. Anderson, DPI

limited area in which it grows and the potential for habitat loss within that area. The striking flowers of this species remind some observers of *Liatris*, another purple, fall-blooming composite found in dry sandhills, and the two are closely related. This beautiful plant would be a welcome addition to xeriscapes and butterfly gardens. (Hillsborough County; B2009-647; Susan B. Youngblood; 13 November 2009; and Pinellas County; B2009-655; Linda G. McRay; 17 November 2009.) (Carrington 1999; Godfrey 1988; Wunderlin and Hansen 2003.)

***Oeceoclades maculata* (Lindl.) Lindl. (monk orchid),** a genus of 31 species mostly distributed in tropical Africa and the Indian Ocean islands, with a single species in the American tropics. Orchidaceae. This attractive plant is one of the few weedy orchid species. In fact, for several years, it was listed as an invasive by the Florida Exotic Pest Plant Council (FLEPPC), but it has since been reevaluated and delisted. It is native throughout the tropics of Africa and the Americas, and its range in the latter area is expanding rapidly. It was first discovered in Puerto Rico in the 1960s and is now found throughout the island. Likewise in Florida, it was first discovered in 1974 in Miami-Dade County, either an escape from cultivation or a natural colonization from the Bahamas. The plant is now known from 14 counties, mostly in the central and southern parts of the state. A record from Alachua County is surprising, because the plant is quite frost-sensitive. The orchid forms small clumps of slightly compressed pseudobulbs, each bearing a single, decorative, leathery leaf that is olive green with dark green mottling, and usually 15-20 cm long. The erect scape is about 15-30 cm tall, with 5-15 flowers opening in succession. The flowers are reminiscent of a miniature cymbidium, but only 10-15 mm across, with greenish or brownish sepals and petals, and a pink and white lip. The flowers often self-pollinate, so seed set is high, and the distinctive capsules have conspicuous, sharp ridges. The monk orchid is occasionally cultivated for its attractive foliage and its charming but not showy flowers. It is not difficult to grow in containers as long as it is not overwatered. In central and southern Florida, it can be enjoyed in the garden, where it does best in full to partial shade and well-drained soil. (Miami-Dade County; B2009-660; Olga Garcia; 23 November 2009.) (Ackerman 1995; Hammer 2002; www.flmnh.ufl.edu/herbarium.)

***Tithonia diversifolia* (Hemsl.) A. Gray (Mexican sunflower),** a genus of 11 species native from the southwestern United States through Mexico into Central America. Compositae/Asteraceae. This spectacular plant is a close relative of *Tithonia rotundifolia*, a popular annual bedding plant with the same common name, but *T. diversifolia* is a towering, clump-forming perennial, capable of growing as much as 5 m tall in a single season. The alternate leaves are coarse and rough-hairy, with three to five long-acuminate, coarsely serrate lobes and a base that tapers to a winged petiole. The leaves vary greatly in length from 15-35 cm long. The flower heads are borne singly or in small clusters. They resemble those of the true sunflowers (*Helianthus*), with 10-13 golden yellow rays and a greenish yellow disc. With a diameter to 15 cm, they are very showy. The plant is native to Mexico and Central America, but it is widely planted throughout the tropics and has become weedy in spots. It has naturalized in nine counties in central and southern Florida, where some fear that it might

***Solidago odora* (anise-scented goldenrod) leaf under surface (compare with reticulation of Chrysoma leaf blade)**
Photograph courtesy of Patti J. Anderson, DPI

***Garberia heterophylla* (garberia)**
Photograph courtesy of Susan B. Youngblood, DPI

***Oeceoclades maculata* (monk orchid)**
Photograph courtesy of Bob Upcavage, Atlas of Florida Vascular Plants

become invasive. The flowers and foliage of the Mexican sunflower are often damaged by even a light frost, and the plant is killed to the ground by freezing temperatures. Since it blooms in the late fall in northern Florida, the floral display is usually truncated by cold, and seeds are seldom produced; however, the roots will survive temperatures into the low twenties F. It is easily cultivated, but it requires full sun to produce the best bloom and to keep it standing erect. (Escambia County; B2009-633; W.L. Robinson; 6 November 2009.) (www.floridata.com.)

***Tithonia diversifolia* (Mexican sunflower)**
Photograph courtesy of TopTropicals

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TRI-OLOGY

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Entomology Section

Compiled by Susan E. Halbert, Ph.D.

This section provides the division's plant protection specialists and other customers with accurate identifications of arthropods. The entomology section also builds and maintains the arthropod reference and research collection (the Florida State Collection of Arthropods - with over 9 million specimens), and investigates the biology, biological control and taxonomy of arthropods.

***Bactericera cockerelli* (Sulc) (potato psyllid)** was intercepted on peppers from Mexico in a regulatory incident. This species is the North American potato/tomato psyllid. It has been a well-known pest for many decades, causing "psyllid yellows of potatoes," which probably is caused by a toxin. More recently, it has been found to transmit *Candidatus* Liberibacter psyllaurous. This pathogen causes zebra chip disorder in potato tubers. It also causes disease in tomatoes and peppers. The psyllid has been expanding its geographic range very rapidly in the past five years or so. The pest is a seasonal migrant. In the past, populations overwintered in southern Texas and northern Mexico, expanding to the north and west each season. Now, there appears to be a permanent population in California as well. Neither the psyllid nor the pathogen is known to be established in Florida. (Suwannee County; Tyson R. Emery, Christine A. Zamora and M. Janie Echols; E-2009-8553; 10 November 2009; and Suwannee County; Amber L. Roux and Christine A. Zamora; E-2009-8888; 6 December 2009.) (Dr. Susan E. Halbert.)

***Gowdeyana punctifera* Malloch (a soldier fly), a State record,** was reared on bark beetle-infested avocado logs. This species has not been reported previously from Florida, although one specimen collected in Gainesville in 1958 is present in the Florida State Collection of Arthropods. The species is widespread in the United States and also occurs in Mexico. These are tiny flies, only 3-4 mm long, but silvery hairs reportedly make them very visible when swarming in sunlit conditions. Larvae of this and most other known members of the soldier fly subfamily Pachygastrinae are found under bark of dead or dying trees. It has been stated that larvae are predaceous on bark beetles. A second pachygastrine species, as yet unidentified, was also reared from the same collection of avocado logs. (Miami-Dade County; Jorge E. Peña, University of Florida; E2009-8127; no day given August 2009.) (Dr. Gary J. Steck.)

***Sobarocephala quadrimaculata* (Soos) (a clusiid fly), a County record,** was collected on a Multi-Lure trap in a citrus tree. Members of this genus are small yellow flies, and most species have distinctive patterns of black spots on the thorax and abdomen. They show up commonly in fruit fly traps. Adults may be abundant around dead and dying trees, and some have been reared from rotting logs. None are reported as plant pests. (Duval County; Isabelle S. James; E2009-8683; 18 November 2009.) (Dr. Gary J. Steck.)

Sample/Specimen Submissions

November

Samples Submitted	635
Specimens Identified	15,514

December

Samples Submitted	593
Specimens Identified	25,026

Year to Date

Samples Submitted	9,370
Specimens Identified	347,585

***Bactericera cockerelli* (potato psyllid, teneral adult)**
Photograph courtesy of Whitney Cranshaw, Colorado State University, bugwood.org

***Gowdeyana punctifera* (a soldier fly)**
Photograph courtesy of Gary J. Steck, DPI

***Vatiga illudens* (Drake) (cassava lace bug), a Continental US record,** was found on *Manihot esculenta* (cassava), growing at a private residence. This species is one of two cassava lace bug species in the genus *Vatiga* that are economic pests of the crop in the Neotropics. Although leaf damage can be severe, the relationship between the bugs and root yields is unclear because of mixed infestations and other plant stress factors. Younger plants and plants under drought stress may be more susceptible to damage than older, vigorous plants. Please see the upcoming Pest Alert on the DPI website for more information and more photos. (Palm Beach County; Lane M. Smith; E-2009-8243; 3 November 2009.) (Dr. Susan E. Halbert.)

Sobarocephala quadrimaculata (a clusiid fly)
Photograph courtesy of Gary J. Steck, DPI

Entomology Specimen Report

Following are tables with entries for records of new hosts or new geographical areas for samples identified in the current volume's time period as well as samples of special interest. An abbreviated table, with all the new records, but less detail about them, is presented in the body of this web page and another version with more complete data is downloadable as a PDF or an Excel spreadsheet.

The tables are organized alphabetically by plant host, if the specimen has a plant host. Some arthropod specimens are not collected on plants and are not necessarily plant pests. In the table below, those entries have no plant information included and are organized by arthropod name.

Download full spreadsheet in PDF format

Download full spreadsheet in Microsoft Excel format

***Vatiga illudens* (cassava lace bug)**
Photograph courtesy of Michael C. Thomas, DPI

Vatiga illudens* (cassava lace bug) colony and damage to *Manihot esculenta
Photograph courtesy of Raymond T. Buchholz and Lane M. Smith, DPI.

Plant Species Name	Plant Common Name	Arthropod Species Name	Arthropod Common Name	County	New Records
Abies fraseri	Fraser's fir, southern balsam fir	*Agathidium* sp.	a beetle	Hernando	Regulatory incident
Abies fraseri	Fraser's fir, southern balsam fir	*Spirembolus mundus*	sheetweb weaver	Leon	Regulatory incident
Abies fraseri	Fraser's fir, southern balsam fir	Staphylinidae/ Omaliinae	a beetle	Hernando	Regulatory incident
Abies fraseri	Fraser's fir, southern balsam fir	*Taiyutyla* sp.	a millipede	Hernando	Regulatory incident
Abies fraseri	Fraser's fir, southern balsam fir	*Tenebrionidae*	a beetle	Hernando	Regulatory incident
Acalypha wilkesiana	Jacob's-coat; copperleaf; beefsteak plant	*Aleurodicus rugioperculatus*	a whitefly	Miami-Dade	Host
Acmella pilosa	coat buttons	*Aceria* sp.	eriophyid mite	Miami-Dade	Host
Angelonia angustifolia	narrowleaf angelon	*Frankliniella occidentalis*	western flower thrips	Citrus	Host
Angelonia angustifolia	narrowleaf angelon	*Frankliniella schultzei*	a thrips	Citrus	County & Host
Brassica oleracea	broccoli, cauliflower	*Hemiphrynus intermedius*	a leaf beetle	Suwannee	Regulatory incident
Brassica oleracea	broccoli, cauliflower	*Liriomyza langei*	California pea leafminer	Suwannee	Regulatory incident
Capsicum annuum	pepper	*Bactericera cockerelli*	potato psyllid	Suwannee	Regulatory incident

TRI-OLOGY

DACS-P-00124 Volume 48, Number 6, November - December 2009 Printer-Friendly PDF Version

Nematology Section

Compiled by Jason D. Stanley, M.S., Renato N. Inserra, Ph.D., Maria de Lourdes Mendes, Ph.D., and Janete A. Brito, Ph.D.

This section analyzes soil and plant samples for nematodes, conducts pest detection surveys and provides diagnosis of plant problems, in addition to completing identification of plant parasitic nematodes involved in regulatory and certification programs. State of Florida statutes and rules mandate the principal part of the regulatory activity of the section. Analyses of plant and soil samples include those from in-state programs, plant shipments originating in Florida destined for other states and countries, as well as samples intercepted in Florida from outside the United States.

Nematodes of Special Interest

In Florida, foliar nematodes belonging to the genus *Aphelenchoides* can be found parasitizing both ornamental and horticultural crops. The most economically important species in this genus are *A. besseyi*, *A. fragariae* and *A. ritzemabosi*. Ornamentals infected by these nematodes are unmarketable due to leaf damage and eventual defoliation. Plant symptoms include necrosis, chlorosis, discoloration and distortion of leaf tissues. The likelihood of infection by these nematodes is increased by high humidity and water droplets on foliage. These conditions facilitate nematode movement from the soil to the leaves and subsequent penetration of leaf tissues. Cultural practices that reduce excess moisture on plant foliage may help prevent infection and movement of these foliar nematodes. These practices include providing sufficient ventilation, avoiding overhead irrigation, using clean plant stock and maintaining rigorous sanitation.

***Aphelenchoides besseyi* Christie, 1942, a foliar nematode,** was found infecting the leaves of a *Lantana* sp., an ornamental plant. (Manatee County; N09-1314, James E. “Eddie” Anderson, 2 November 2009.)

***Meloidogyne javanica* (Treub, 1885) Chitwood, 1949, the Javanese root-knot nematode,** was found infecting the roots of *Cucurbita moschata* ‘La Estrella,’ a tropical pumpkin. (Manatee County, N09-01388, Karen L. Etchells, 23 November 2009.)

***Meloidogyne mayaguensis* Rammah & Hirschmann, 1988, the guava root-knot nematode, a new County record,** was also found infecting the root system of *Cucurbita moschata* ‘La Estrella.’ This nematode species induces severe root galling in many crops, including cucurbits. Several plant species have been found to be good hosts for this root-knot nematode species in Florida. (Manatee County, N09-01388, Karen L. Etchells, 23 November 2009.)

Collectors submitting five or more samples that were processed for nematological analysis in November - December 2009

Anderson, James L.	119
Bailey, Wayne W.	31

Sample Submissions

	Nov/ Dec	Year to Date
Morphological Identifications	2,018	14,765
Molecular Identifications	91	894
Total Samples Submitted	2,109	15,659

Certification and Regulatory Samples

Multistate Certification for National and International Export	1,447	11,0370
California Certification	382	2,491
Pre-movement (Citrus Nursery Certification)	70	247
Site or Pit Approval (Citrus Nursery and Other Certifications)	4	229

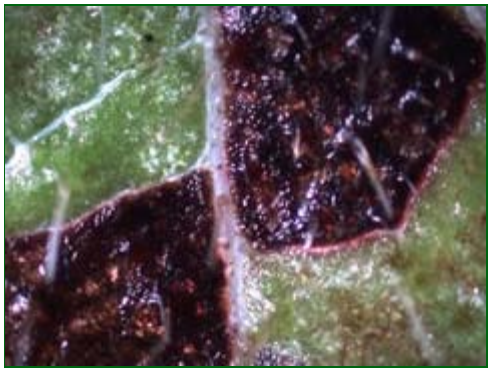
Other Samples

Identifications (invertebrate)	2	19
Plant Problems	17	166
Intrastate Survey, Random	96	576
Molecular Identifications*	91	894

*The majority of these analyses involved root-knot nematode species

Bentley, Michael A.	8
Burgos, Frank A.	117
Edenfield, Carrie S.	179
LeBoutillier, Karen W.	282
Ochoa, Ana L.	143
Pate, Jo Ann	17
Podris, Flewellyn W.	20
Qiao, Ping	182
Robinson, William L.	12
Spriggs, Charles L.	242

***Aphelenchoides besseyi* (a foliar nematode) infecting the foliar tissues of *Lantana* sp.**
Photograph courtesy of Jason D. Stanley, DPI



***Aphelenchoides besseyi* (a foliar nematode) infecting *Lantana* sp.**
Note the dark necrotic leaf spots induced by nematode feeding and migration. The adjacent healthy green leaf tissue escaped the nematode colonization.
Photograph courtesy of Jason D. Stanley, DPI

***Cucurbita moschata* 'La Estrella' (tropical pumpkin) with root system heavily galled due to the infection induced by *Meloidogyne javanica* and *Meloidogyne mayaguesis*.**
Photograph courtesy of Mariana P. Beckman and Janete A. Brito, DPI

TRI-OLOGY

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Plant Pathology Section

Compiled by Robert M. Leahy

This section provides plant disease diagnostic services and conducts a citrus germplasm introduction program. The agency-wide goal of protecting Florida agriculture very often begins with accurate diagnosis of plant problems. Disease management recommendations are offered where appropriate and available. Our plant pathologists are dedicated to keeping informed about plant diseases outside Florida in order to be prepared for potential introductions of new pathogens.

***Raffaelea lauricola* (laurel wilt)** was sampled on *Persea borbonia* (red bay) in a DPI research laboratory. Isolates of the *Raffaelea lauricola*, the laurel wilt pathogen, were used to inoculate containerized avocados (*Persea americana* Mill. 'Simmonds'). The inoculated avocados developed laurel wilt symptoms, after which discolored vascular tissue was cultured in order to recover the fungal pathogen. The pathogenic fungus was recovered from all inoculated plants. (Alachua County; P2009-32351, -32352, -32354, -32355, -32360, -32655; Robert M. Leahy and Jodi L. Hansen; November and December 2009.)

Sample Submissions

	Nov/ Dec	Year to Date
Pathology	338	2,304
Bee	2	21
Citrus Canker	396	2,163
Citrus Greening	5,941	11,430
Soil	3	34
Miscellaneous	12	37
Total Samples Submitted	6,692	15,989

***Persea americana* (avocado) healthy leaves and fruit**
Photograph courtesy of Walter Hodge, Atlas of Florida Vascular Plants

Plant Pathology Sample Report

Following is a table with entries for records of new hosts or new geographical areas for samples identified in the current volume's time period as well as samples of special interest. The tables are organized alphabetically by plant host.

Plant Species	Plant Common Name	Causal Agent	Disease Name	Location Type	County	Sample Number	Collector	Date	New Records
Allium porrum	garden leek	*Puccinia allii*	rust	Agricultural Inspection Station	Suwannee	31826	Christine A. Zamora, Amber L. Roux	6-Dec-09	
Cyperus papyrus	papyrus	*Leptosphaeria* sp.	leaf spot	nursery	Marion	31460	Gene Gruenbeck	25-Nov-09	
Dianthus sp.	dianthus, pinks	*Burkholderia andropogonis*	bacterial leaf spot	nursery	Marion	31415	Gene Gruenbeck	25-Nov-09	
Epipremnum aureum	pothos	*Phytophthora tropicalis*	leaf blight	nursery	Lake	31249	Harry L. Morrison	20-Nov-09	
Feroniella oblata	Indo-China	*Cephaleuros*	algal leaf	farm	Martin	32414	Kenneth L. Hibbard	15-	Host

	feroniella	*virescens*	spot					Dec-09	
Fragaria x ananassa	hybrid strawberry	*Cylindrocladiella* sp.	root rot	dooryard	Palm Beach	32032	Bruce Johnson	10-Dec-09	Host
Ilex glabra	galberry	*Cylindrocarpon* sp.	root rot	dooryard	Palm Beach	30833	Wayne W. Bailey	2-Nov-09	
Ilex glabra	galberry	*Thielaviopsis basicola*	root rot	dooryard	Palm Beach	30833	Wayne W. Bailey	2-Nov-09	
Ilex glabra	galberry	*Phytophthora cinnamomi*	root rot	dooryard	Palm Beach	30833	Wayne W. Bailey	2-Nov-09	
Neoregelia sp.	bromeliad	*Morenoina sp.*	black mildew/leaf spot	nursery	Sarasota	31728	Karen L. Etchells	1-Dec-09	Host
Pachysandra sp.	pachysanda	*Volutella pachysandricola*	blight	nursery	Marion	29648	Ron Love	9-Nov-09	
Persea americana	avocado	*Raffaelea lauricola*	Laurel wilt	dooryard	Brevard	30659	Timothy S. Schubert	4-Nov-09	
Persea americana	avocado	*Raffaelea lauricola*	Laurel wilt	roadside	Highlands	30948	Douglas Restom Gaskill, Shi-Yih 'Edward' Hung, MonaLisa Payne	16-Nov-09	
Persea americana	avocado	*Raffaelea lauricola*	Laurel wilt	roadside	Highlands	30964	Douglas Restom Gaskill, Shi-Yih 'Edward' Hung, MonaLisa Payne	16-Nov-09	
Persea americana	avocado	*Raffaelea lauricola*	Laurel wilt	DPI lab	Alachua	32351	Robert M. Leahy, Jodi L. Hansen	22-Dec-09	
Persea americana	avocado	*Raffaelea lauricola*	Laurel wilt	DPI lab	Alachua	32352	Robert M. Leahy, Jodi L. Hansen	22-Dec-09	
Persea americana	avocado	*Raffaelea lauricola*	Laurel wilt	DPI lab	Alachua	32354	Robert M. Leahy, Jodi L. Hansen	22-Dec-09	
Persea americana	avocado	*Raffaelea lauricola*	Laurel wilt	DPI lab	Alachua	32355	Robert M. Leahy, Jodi L. Hansen	22-Dec-09	
Persea americana	avocado	*Raffaelea lauricola*	Laurel wilt	DPI lab	Alachua	32360	Robert M. Leahy, Jodi L. Hansen	22-Dec-09	
Persea americana	avocado	*Raffaelea lauricola*	Laurel wilt	DPI lab	Alachua	32655	Robert M. Leahy, Jodi L. Hansen	18-Nov-09	