Coriander Aphid
*Hyadaphis coriandri*

Image credit: Jeffrey Lotz, Division of Plant Industry
Coriander aphid (*Hyadaphis coriandri*) is probably native to Central Asia. It is also found in Portugal, Spain, the Mediterranean region, the Middle East, Central Asia, India, Pakistan, Africa, the United States (California and Florida) and South America (Peru and Argentina). It is known as a serious pest of coriander (aka cilantro) (*Coriandrum sativum*) and fennel. The seeds of the cilantro plant are referred to as coriander, though sometimes the plant itself is also referred to as coriander.

It was first found in the U.S. in 1997 from residences in Apopka and Orlando (Orange County, Florida) on fennel plants that were being sold for butterfly gardens.
Damage

• Damage to leaves and stems
  – Make the plant unmarketable

• Damage to flowers
  – Lowers the seed yield
  – Causes deformed seeds to form
    * Makes the seeds unmarketable

Coriander aphids (and many other aphids) tend to colonize their host in very high densities.

In areas where hosts are grown and sold for their leaves and stems (usually these plants are harvested before they flower), the damage they cause to these plant parts make the plants unmarketable.

In areas where the plants are grown so that the seeds can be harvested, they can sometimes build high densities on flower heads which affects seed yield. In some South Asian countries like India, the seeds are commonly used as a flavoring in prepared food, and as such, the plants are grown commercially for their seeds.

It has been reported that the umbels (flowers) of heavily infested plants drop and no capsule formation takes place (which means no seeds are produced). In less infested plants, the seeds are deformed, affecting the quality and quantity of the produce. In India, yield losses of up to 64% have been recorded.
After the initial detection in 1997, an infestation also was found on coriander (cilantro) and dill at a residence in Tampa (Hillsborough County) in December 1998. It appears that this pest may have been transported on plant material along the I-4 corridor.

So far, this pest has been detected in Orange, Hillsborough, Pinellas, Polk, Miami-Dade, and Collier counties. These records come from plants in Orange, Hillsborough, Pinellas, and Miami-Dade Counties and suction trap records in Polk, Miami-Dade, Hillsborough, and Collier Counties as of 2017.

There are no reports of infestations from commercial operations that raise or sell plants. However, it is possible that this pest could be repeatedly introduced with the importation of fresh herbs into Florida.

The aphid is native to areas in Asian, Africa, and the Mediterranean. It ha only ben located in California and Florida in the U.S.
The data are from Florida Department of Agriculture and Consumer Services, Division of Plant Industry (FDACS/DPI) suction trapping.

This pest is not numerous. In over 10 years of continuous trapping and surveying, FDACS/DPI has collected about 15 total specimens! However, it is still good for people to be aware of this pest in case it begins to build up populations that could reach a level that will cause significant damage.
Summer hosts for *H. coriandri* are:

- Coriander or cilantro (*Coriandrum sativum*)
- Carrot (*Daucus carota*)
- Celery (*Apium graveolens*)
- Fennel (*Foeniculum vulgare*)
- Parsley (*Petroselinum crispum*)
- Dill (*Anethum graveolens*)
- Cumin (*Cuminum cyminum*)
- Caraway (*Carum carvi*)
- Parsnip (*Pastinaca sativa*)
- Sweet cumin (*Pimpinella anisum*)

Its winter host in its native range is a honeysuckle species (*Lonicera nummulariifolia*) which is not known to occur in Florida. However, there are at least 45 species of *Lonicera* that are found in the U.S. (both native and non-native species). It is not known if one of these species may be acceptable as a winter host for this aphid. In addition, in warm states, there may not be a need to have a winter host at all.

Coriander aphids have been reported from a few other hosts that are outside Umbelliferae (e.g. horsemint (*Mentha longifolia*), spiny pigweed (*Amaranthus spinosus*), soybean (*Glycine max*), blonde psyllium (*Plantago ovata*)). This is a very important pest in coriander/cilantro in India during the summer months.
Life Cycle

• Host alternating aphid
  – Overwinters in egg stage on *Lonicera* spp.
  – Moves to *Umbelliferae* in the spring and summer

In its native range, this is a host-alternating aphid. Host-alternating insects change their hosts dependent upon the season. It overwinters in the egg stage on *Lonicera nummulariifolia* and other *Lonicera* spp. (these are all species of honeysuckle). *Umbelliferae* is a plant family that includes celery, carrots, parsnip, coriander, and others.
The following spring, a **fundatrix (stem mother)** *(this needs to be explained better)* hatches. Her offspring are winged females that are parthenogenic, **which means they reproduce asexually and do not require males.** They will colonize their summer hosts which are plants in the Umbelliferae, like carrots, cilantro, and celery.

There will be several generations produced on these summer host plants which can be winged or wingless, but they will all be parthenogenic (**asexual**) females. Winged aphids are produced when the host plant gets too crowded or if the quality of the food declines. **Wings allow the aphids to then disperse to find new resources.**

In the fall, both winged parthenogenic females and winged males are produced. **Both the males and females** return to their winter hosts *(Lonicera spp.)*. The winged parthenogenic females then give birth to sexually reproducing, **egg laying females** who will mate with the winged males. The eggs they produce are laid on the winter host and will wait for spring to hatch.

In warm states, such as Florida, there may not be a need to overwinter at all which means that there would be continuous colonies of the winged and wingless forms of parthenogenic females.

Images on the right show the differences between winged and wingless aphids. The images are of Taterian Honeysuckle Aphids not the Coriander aphid.

Females were reported to lay between 10 and 58 eggs in their lifetime with an average of 37 eggs. The total nymphal duration can range from 4 to 11 days, while the life span of the adults ranges from 12 to 37 days (depending on temperatures).
Identification

• **Colonizing wingless adults** should be used for identification
  – Host plant

• Winged aphids could be passing-by
  – Many species of aphids will land temporarily on Umbelliferae species

Only adult wingless forms are reliable for identification. Many species of winged aphids will settle temporarily on Umbelliferae, thus, winged individuals are not always reliable for identification by non-specialists.

Aphids on Umbelliferae ideally should be sent to a specialist for confirmation.

These aphids are yellowish green in color and look like they have been dusted in greyish wax. They measure 1.3 to 2.1mm in length. There are three to four nymphal instars. The first instars are off white in color which becomes light green in the second instars. Third instars are green in color. The siphunculi (cornicles) are short, pale, and slightly swollen with a length that is twice as long as wide. The siphunculi/cornicle is a hole/pore on the dorsal side of an insect where pheromones are emitted.
The same genus as the Coriander aphid, *Hyadaphis*, also includes about 15 other species, most of are obscure and little-known. We do have three species of *Hyadaphis* in the United States (including *H. coriandri*) which can be found on either Umbellierae or *Lonicera*. They are all adventive or exotic (not native to the U.S.).

One species is the honeysuckle witches' broom aphid, *H. tataricae*, which damages ornamental honeysuckle in the northern states. They are yellow-green to brownish yellow, coated with greyish wax powder and measure 1.1 to 2.5mm in length. Its siphunculi is pale or only lightly pigmented like those of *H. coriandri*, however *H. tataricae*’s siphunculi are constricted at the base. This pest remains on its *Lonicera* host throughout the year but seems to be restricted to the northern states (it is not found in Florida). It is originally from Central Asia.

Another is the honeysuckle aphid, *Hyadaphis foeniculi*. It is originally from Central Asia. They are greyish green or light green with dark appendages and measure 1.3 to 2.6mm in length. Its siphunculi are dark and much longer than those of *H. coriandri*. Its host preference alternates between *Lonicera* (in the winter) and Umbelliferae (in the summer). There is no reliable evidence that this species has been detected in Florida.
Look-Alike Aphids

Coriander Aphid
*Hyadaphis coriandri*

Green Peach Aphid
*Myzus persicae*

Rice Root Aphid
*Rhopalosiphum rufiabdominale*

Yellowish-Green coloration with grey dusting

Longer siphunculi
Whitish/Pale-Yellowish coloration

Longer siphunculi
Reddish/Greenish-Brown coloration

While not in the same genus as the Coriander aphid, the green peach aphid (*Myzus persicae*) and rice root aphid (*Rhopalosiphum rufiabdominale*) colonize Umbelliferae hosts and are found in Florida.

Both of these aphids have siphunculi that are much longer than the length of the coriander aphid’s siphunculi. The color of the green peach aphid varies from whitish or pale yellowish green to mid-green, rose-pink or red. It measures 1.2 to 2.3mm in length.

The rice root aphid are reddish or greenish-brown with bluish-white mealy wax that form cross-bands on its dorsum. It measures 2.0 to 2.6mm in length.
Scouting and Management

- Scout plants weekly for this aphid pest
- Remove crop residue
- Limited use of insecticides helps preserve natural enemy populations
- At high populations, systemic insecticides or those with translaminar penetrating activity are effective

Scouting your plants for this pest is the best way to find coriander aphid. Plants should be examined weekly for their presence.

Removing crop residue is also important in controlling for aphids. **Is there any info about why this helps?**

Low insecticide input allows for natural enemies to control the population of aphids. However, aphids reproduce quickly and move to protected areas of the plant were predators and parasitoids may not be able to get to them.

Systemic insecticides or those with translaminar penetrating activity are effective in the control of aphids in general. Please avoid broad spectrum pesticides to preserve natural enemies.

**There is EDIS document that is a** management guide for aphids attacking celery and parsley (http://edis.ifas.ufl.edu/IG149) which gives management suggestions for aphids in general.

Be sure to contact your local county agent regarding treatments suggestions before application. In addition, remember to follow the label directions (do not use off label).
The Digital Diagnostic Identification System (DDIS) connects extension clientele, extension agent, specialists, plant disease clinics, and government officials. Users can submit electronic samples through the system to get rapid identification of insect, weed, mushroom, plant pathogens, and abiotic disorder samples. The general public and shareholders must contact their local county extension agent before signing up as extension clientele.
The UF/IFAS faculty is responsible for reporting diseases, insects, weeds, nematodes, or any other invasive species to the Florida Department Agriculture and Consumer Services, Division of Plant Industry (FDACS, DPI). Reporting this information is essential to protect Florida agriculture, communities and natural areas.

Local county extension agents can assist in identifying plant pests or submitting a pest sample to the correct department or agency for identification. Local extension agents can also sign up for DDIS and receive samples electronically.

Lyle Buss is the insect identifier at the University of Florida. Visit the link to download the sample submission form or email him with questions.

Dr. Carrie Harmon is the head of the plant diagnostic center in Gainesville, Florida. Visit the PDC website to download the sample submission forms. She highly recommends calling prior to sample submission.

The diagnosticians and identifiers in each area will also provide management strategies for the sample. If an invasive pest is found, they will send it FDACS, DPI for further testing.
Reporting
FDACS: Division of Plant Industry

• FDACS, DPI Responsibility
  o Announcing detection or establishment of new invasive species.
  o Reporting is a legal obligation under Florida Statute 581.091.

• Submission Form
  – https://www.fdacs.gov/Agriculture-Industry/Pests-and-Diseases/How-to-Submit-a-Sample-for-Identification

Florida Department of Agriculture and Consumer Services: Division of Plant Industry is a regulatory agency dedicated to the detection and prevention of introduction and spread of pests and diseases that can affect Florida’s native and commercially grown plants. Announcing the establishment of new invasive species can affect Florida’s agricultural producers and trade of agricultural products.

FDACS, DPI provides online submission forms to fill out and send to the agency for proper identification. DPI provides useful videos of how to properly handle the specimens before shipping them for identification.
The DPI contacts provided will assist in determining the next steps if the pest found is of regulatory concern. Additionally, FDACS, DPI has a hotline with both a phone number and email for questions and concerns.
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Authors

• Stephanie Stocks, M.S.
  Former Assistant-In, Extension Scientist, Department of Entomology and Nematology, University of Florida

• Shweta Sharma, Ph.D.
  Former Department of Entomology and Nematology, University of Florida

• Amanda Hodges, Ph.D.
  Associate Extension Scientist, Department of Entomology and Nematology, University of Florida
Editors

• Trevor Forsberg, B.S.
  Biosecurity Research and Extension Lab, Department of Entomology and Nematology, University of Florida

• Shannon McAmis, M.S.
  Graduate Research Assistant, Doctor of Plant Medicine Program, University of Florida
Original Reviewers

• Susan Halbert, Ph.D.
  Florida Department of Agriculture and Consumer Services, Division of Plant Industry

• Gary Miller, Ph.D.
  United States Department of Agriculture, Agricultural Research Service, Systematic Entomology Laboratory
Collaborating Agencies

- U.S. Department of Agriculture Animal and Plant Health Inspection Service (USDA-APHIS)
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