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Citrus Greening

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Citrus greening, also called Huanglongbing (HLB), is a bacterial infection of citrus plants. It is one of the most serious citrus diseases in the world. Once infected, most trees die within a few years. There is no cure. While the disease poses no health threat to people or animals, it has devastated millions of acres of citrus crops throughout the United States and abroad.

In the United States, citrus greening is spread by a tiny insect called the Asian citrus psyllid (*Diaphorina citri* Kuwayama). Infected trees produce fruits that are poorly colored, possibly lopsided, and bitter. This fruit can only be sold for juicing. Citrus greening is currently found throughout Georgia, Florida, Puerto Rico, and the U.S. Virgin Islands. It is also found in portions of Alabama, California, Louisiana, South Carolina, and Texas.

What To Look For

While the Asian citrus psyllid causes little damage when it feeds, it spreads citrus greening disease which gradually kills fruit-bearing trees, including oranges, lemons, limes, tangerines, and grapefruits.

Here's what to look for:

- Asian citrus psyllid
 - Eggs are yellow-orange and almond-shaped. They are often tucked inside crevices and leaf folds.
 - Nymphs are difficult to see, but leave behind waxy, white excretions on plants.
 - Adult psyllids are gnat-sized, only about 1/8-inch long. When approached, they jump or fly.
 - Adults have three abdominal colors: blue-green, gray-brown, or orange-yellow.
 - They have mottled brown wings, and the last two segments of their antennae are black.
- Citrus greening
 - Once infected, a tree can remain asymptomatic, serving as a source of bacteria that infects other trees.
 - Over time, an infected tree will start producing fewer fruit that are partially green, smaller, shaped irregularly, and taste bitter. Leaves may show asymmetrical, blotchy mottling.
 - Citrus greening is present in most citrus-growing States except Arizona.

View images of [Asian citrus psyllid](#) and [citrus greening](#).

How To Prevent This Disease

To help prevent this pest from spreading, here's what you can do:

- [Know the quarantines in your area](#).
- Buy only USDA-certified citrus plants.
- Don't move branches, green waste, dead trees, or other regulated items out of a quarantined area.
- Don't mail or transport home-grown citrus fruit or plants out of a quarantined area.
- Commercial nurseries must follow [strict protocols for moving citrus nursery stock](#) out of quarantined areas.

How It Is Treated

There is no treatment or cure for citrus greening. Infected trees eventually die.

Report Signs of Citrus Disease

If you think you've seen signs of this disease or pest, immediately report it by completing our online form.

[Report Form \(English\)](#)

[Report Form \(Spanish\)](#)

Controlling Citrus Greening and Asian Citrus Psyllid

Current Status

APHIS publishes the legal description of current quarantine areas. Users can search by State and pest to determine quarantine area(s).

- [Table of Federal Quarantine Descriptions](#)
- [Interactive Citrus Federal Quarantine Map](#)

Regulatory Information

- [Interstate Movement of Regulated Fruit from a Quarantine Area](#) (7 CFR 301.76)
- [Regulated Articles Table](#): Use this table to find requirements for moving regulated articles, such as fruit, nursery stock, and other items.
- [Citrus Greening and Asian Citrus Psyllid Regulated Areas](#)
- [Citrus Greening and Asian Citrus Psyllid Regulated Articles](#)
- View the National Environmental Policy Act (NEPA) Documents in the Reports and Assessments section below.

Huanglongbing Multi-Agency Coordination

In 2013, the U.S. Department of Agriculture implemented a unified emergency response framework to help address the citrus industry's immediate and long-term needs in dealing with citrus greening. APHIS leads the group, which includes representatives from USDA's Agricultural Research Service (ARS) and National Institute of Food and Agriculture (NIFA); the U.S. Environmental Protection Agency; State departments of agriculture in Arizona, California, Florida, and Texas; and citrus industry organizations in California, Florida, and Texas. The multi-agency group helps to coordinate and prioritize Federally funded research with industry's efforts to bridge the gap between research and implementation, reduce unnecessary duplication, and more quickly provide practical tools for citrus growers to use.

[Learn more about the coordinated response to citrus disease](#)

Potentially Actionable Suspect Sample Policy

A potentially actionable suspect sample (PASS) is a **regulatory sample³ from the environment or an APHIS-approved exclusionary facility⁵** where preliminary diagnostics indicate that *Candidatus Liberibacter asiaticus*, a USDA-regulated pathogen, is present and must be confirmed by APHIS' Plant Pathogen Confirmatory Diagnostics Laboratory (PPCDL).

Samples Collected from a Non-Regulated Area

Any regulatory sample collected from a non-regulated area¹ or APHIS-approved exclusionary facility that tests positive using APHIS-approved tests for the presence of *Candidatus Liberibacter asiaticus* by a **NPPLAP-accredited lab⁶**

using an APHIS-approved screening test is considered a PASS and must be forwarded to PPCDL for final determination. A **sample**⁴ should consist of symptomatic plant material.

Sample Diagnostics

USDA APHIS PPQ Science & Technology

Plant Pathogen Confirmatory Diagnostics Laboratory

9901 Powder Mill Rd. Bldg. 580

Laurel, MD 20708

Phone: (301) 313-9208 or (301) 313-9271

When forwarding materials, notify the lab by email (APHIS-PPQCPHSTBeltsvilleSampleDiagnostics@usda.gov). Include the number of samples, screening diagnostic results, and tracking information in this communication. Do not ship samples on Fridays or the day before a federal holiday.

Please see [additional information for preparing and submitting samples](#).

Samples Collected from a Regulated Area

A **regulatory sample** collected in a **regulated area**² where preliminary diagnostics indicate *Candidatus Liberibacter asiaticus* by a **NPPLAP-accredited lab** using the APHIS-approved screening test is considered a PASS and must be forwarded to PPCDL ONLY under the following conditions:

- The sample is an unusual detection (novel symptoms or new host), and/or
- The sample will result in the expansion of a previously established regulated area

A NPPLAP-certified analyst at a **NPPLAP-accredited laboratory** is authorized to make the final determination on a regulatory sample collected from a regulated area (previously confirmed positive by APHIS) if the laboratory notifies the APHIS national or regional program manager of the positive within 24 hours of the diagnostic result.

Definitions

¹ Non-Regulated Area: Any area where citrus canker is not known to occur in the United States.

2 Regulated Area: Any APHIS-recognized area where citrus greening/huanglongbing has been federally confirmed.

3 Regulatory Sample: This is a sample of regulatory concern to APHIS for citrus greening/huanglongbing collected by regulatory officials.

4 Sample: A sample refers to a single bag of leaves or a twig with attached leaves. Each sample is to contain a minimum of 12 symptomatic (unhealthy) leaves; 12-16 leaves if possible. It is strongly encouraged that each sample is from one plant.

5 APHIS-approved exclusionary facility: A greenhouse structure designed to exclude quarantine pests that is approved by APHIS to produce citrus nursey stock for interstate movement.

6 NPPLAP-Accredited Lab: A laboratory recognized by APHIS through the National Plant Protection Laboratory Accreditation Program (NPPLAP) as possessing all the necessary equipment and certified personnel to perform citrus greening screening tests using current APHIS work instructions.

Spread the Word

Save Our Citrus Videos

- [Save Our Citrus: Put the Squeeze on Citrus Disease](#) (Spanish)
- [Save Our Citrus: Put the Squeeze on Citrus Disease - Arizona](#)
- [Save Our Citrus: Put the Squeeze on Citrus Disease - California](#)
- [Save Our Citrus: Put the Squeeze on Citrus Disease - Florida](#)
- [Save Our Citrus: Put the Squeeze on Citrus Disease - Louisiana](#)
- [Save Our Citrus: Put the Squeeze on Citrus Disease - Texas](#)

Reports and Assessments

- October 2014 - [Field Release of the Parasitoid *Diaphorencyrtus aligarhensis* for the Biological Control of the Asian Citrus Psyllid in the Contiguous United States](#)
- August 2010 - [Asian Citrus Psyllid Control Program in the Continental United States and Puerto Rico, Environmental Assessment](#)
 - [Finding of No Significant Impact For Asian Citrus Psyllid Control Program in the Continental United States and Puerto Rico Environmental Assessment](#)
- June 2010 - [Proposed Release of a Parasitoid \(*Tamarixia radiata* Waterston\) for the Biological Control of Asian Citrus Psyllid \(*Diaphorina citri* Kuwayama\) in the](#)

Continental United States, Environmental Assessment

- July 2009 - Quarantine and Interstate Movement of Citrus Greening and Asian Citrus Psyllid, Environmental Assessment
 - Revised Finding of No Significant Impact for Quarantine and Interstate Movement of Citrus Greening and Asian Citrus Psyllid, Environmental Assessment
 - Finding of No Significant Impact For Asian Citrus Psyllid Control Program in the Continental United States and Puerto Rico Environmental Assessment
- January 2009 - Asian Citrus Psyllid Control Research Project, Hidalgo County, Texas, Environmental Assessment
 - Calendar Year 2010 Amendment to Finding of No Significant Impact for Asian Citrus Psyllid Control Research Project, Hidalgo County, Texas
 - Finding of No Significant Impact for Asian Citrus Psyllid Control Research Project, Hidalgo County, Texas, Environmental Assessment
- October 2007 - Movement of Regulated Articles From Citrus Greening and Asian Citrus Psyllid Quarantine Zones, Environmental Assessment
 - Finding of No Significant Impact for Movement of Regulated Articles from Citrus Greening and Asian Citrus Psyllid Quarantine Zones, Environmental Assessment
- January 2006 - Citrus Greening Control Program in Florida Nurseries, Environmental Assessment
 - Finding of No Significant Impact Citrus Greening Control Program in Florida Nurseries Environmental Assessment