



PROTECTING YOUR CITRUS: Submitting Plant Samples to Test for Huanglongbing

As the threat of Huanglongbing (HLB) continues to loom over California's citrus industry, growers are being encouraged to employ as many best practices as feasible for their operation in order to limit the spread of the Asian citrus psyllid (ACP) and HLB.

In addition to regular treatments, visual inspections, scouting for ACP and promoting overall tree health, some growers are proactively conducting routine testing using direct methods of detection of the bacteria that causes HLB, such as real-time polymerase chain reaction. Routine testing can help growers identify an infection sooner, so they can use their best efforts to limit further spread of the disease.

Growers can submit plant samples to permitted labs, including:

Citrus Pest Detection Program

Attn: PCR Laboratory
22847 Road 140
Tulare, CA 93274

Call (559) 686-4973 for more information. **See back for details on how to properly submit your samples.**



This blotchy yellowing of citrus tree leaves is an early sign of HLB.



Citrus fruit from trees infected with HLB may be misshapen and rancid tasting.



Corky veins on citrus tree leaves is another symptom of HLB.

As always, if you think you have found the pest of disease, contact your local agricultural commissioner or The California Department of Food and Agriculture at 800-491-1899 immediately.

How to Submit Plant Samples

The purpose of leaf sample collections is to test for the presence of HLB-infected trees in citrus groves. The following instructions are provided to ensure that growers requesting testing follow California Department of Food and Agriculture (CDFA) required leaf collection and handling protocols.

- Visually assess each tree to be sampled, looking for known HLB symptoms. It is best to search for and collect symptomatic leaves whenever possible.
- If yellow shoot symptoms are present, select 12 leaves from that branch. Select symptomatic leaves with the petiole attached. If the petiole breaks off, discard the leaf and select another.
 - If yellow shoot symptoms are not present, inspect the entire tree for other symptoms (leaf mottling, twisted leaf psyllid damage, vein thickening). Visually divide the tree into cardinal quadrants (N, S, E, W) and collect four leaves from each quadrant for a total of 16 leaves per tree, this is equal to one sample.
 - Select young leaves of medium size, attempting to collect leaves one growth period old and as near to flush as possible. Include the entire leaf with the petiole attached. If the petiole breaks off, discard the leaf and select another. In case of close plantings, take extra care to ensure that each sample contains leaves from only one tree.
- If no symptoms are present, select 16 leaves (4 from each quadrant) from fully expanded current season flush.
- If clippers are used, disinfect after every sample collection.
- Wipe or brush leaves to remove dust and debris. Thoroughly check the sample to ensure that there are no thorns and that all insects (especially ACP) and their life stages are removed.
- Fold each sample at the midrib. Wrap the folded bundle of leaves in a dry paper towel. Place the paper towel with leaf sample in a zip-lock plastic bag. Label the zip-lock bag with the unique sample identifier number, the date collected, the exact location of the host tree, address, cross street, city, and county. Then place the labelled zip-locked bag inside another zip-lock bag to double bag.
- Immediately place the double-bagged samples in an ice chest with blue ice packs to keep samples cool. It is essential to put protective material (i.e., a layer of newspapers) between the blue ice packs and the samples to ensure that the samples stay dry and do not get freezer burn.
- Before sending the ice-chest/cooler with the samples, make sure there are no ACP with the leaf sample or inside the package. If any insect is found, the sample must be cleaned again.
- Complete the packing list form provided with these instructions, to include all the sample identification information for the entire shipment.
- Ship to address located on this flier.
- Growers must mark the trees from which the samples came from for retesting purposes. If any samples come back positive, CDFA will be notified and will contact the grower to resample.

Laboratories Permitted to Receive Grower HLB Samples

Currently, the Citrus Pest Detection Program (CPDP), operated by the Central California Tristeza Eradication Agency, is permitted to provide HLB testing services of plant samples from growers throughout the state – except in HLB quarantine areas – via mail. However, growers located in the San Joaquin Valley can request CPDP representatives take samples from their orchard for testing rather than mailing it.

Learn about sampling, testing protocols, grower costs and other questions by calling the CPDP: 559-686-4973.