

The Backyard Orchard – Citrus Diseases– Module 5.2 Citrus Greening (HLB)



LSU AgCenter Backyard Orchard
Certificate Course

Dr. Raj Singh, Dr. Joe Willis, Anna Timmerman & Chris Dunaway

Citrus greening

- Bacterial disease caused by *Candidatus Liberibacter asiaticus*.
- It is also known as Huanglongbing (HLB), yellow shoot or yellow dragon disease.
- The disease is thought to have originated in Asia and was first described in the early 1900s.
- It was first detected in the United States in Florida in 2005.
- In 2008, HLB was detected in Louisiana.
- In 2009, the disease was detected in Georgia and South Carolina.
- In 2012, HLB was detected in Texas and residential areas of California.
- Currently in the US, citrus greening is found in CA, FL, GA, LA, Puerto Rico, SC, TX, and the U.S. Virgin Islands.

Citrus greening

- Three strains of citrus greening including African, Asian, and Brazilian occur in the world but only Asian strain is present in the US.
- Citrus greening is a phloem (food conducting channels) limited systemic disease.
- Asian citrus psyllid (ACP), *Diaphorina citri*, transmits the disease.
- The disease is also transmitted by grafting.
- The disease is spread by ACP and movement of infected plant material.
- All citrus cultivars and hybrids are susceptible to citrus greening. Chinese box orange (*Severinia buxifolia*) and curry leaf (*Murraya koenigii*) are also hosts of citrus greening.
- There is no cure of citrus greening. Once a citrus tree is infected, it remains infectious for rest of its life.

CITRUS GREENING QUARANTINE
LOUISIANA DEPARTMENT OF AGRICULTURE & FORESTRY
MIKE STRAIN DVM, COMMISSIONER

Quarantined Parishes

MISSISSIPPI

GULF OF MEXICO

TEXAS

Quarantined Parishes: Washington, St. Bernard, Plaquemine, and parts of St. Tammany and St. Charles.

Other Parishes: All other parishes in Louisiana are shown in green.

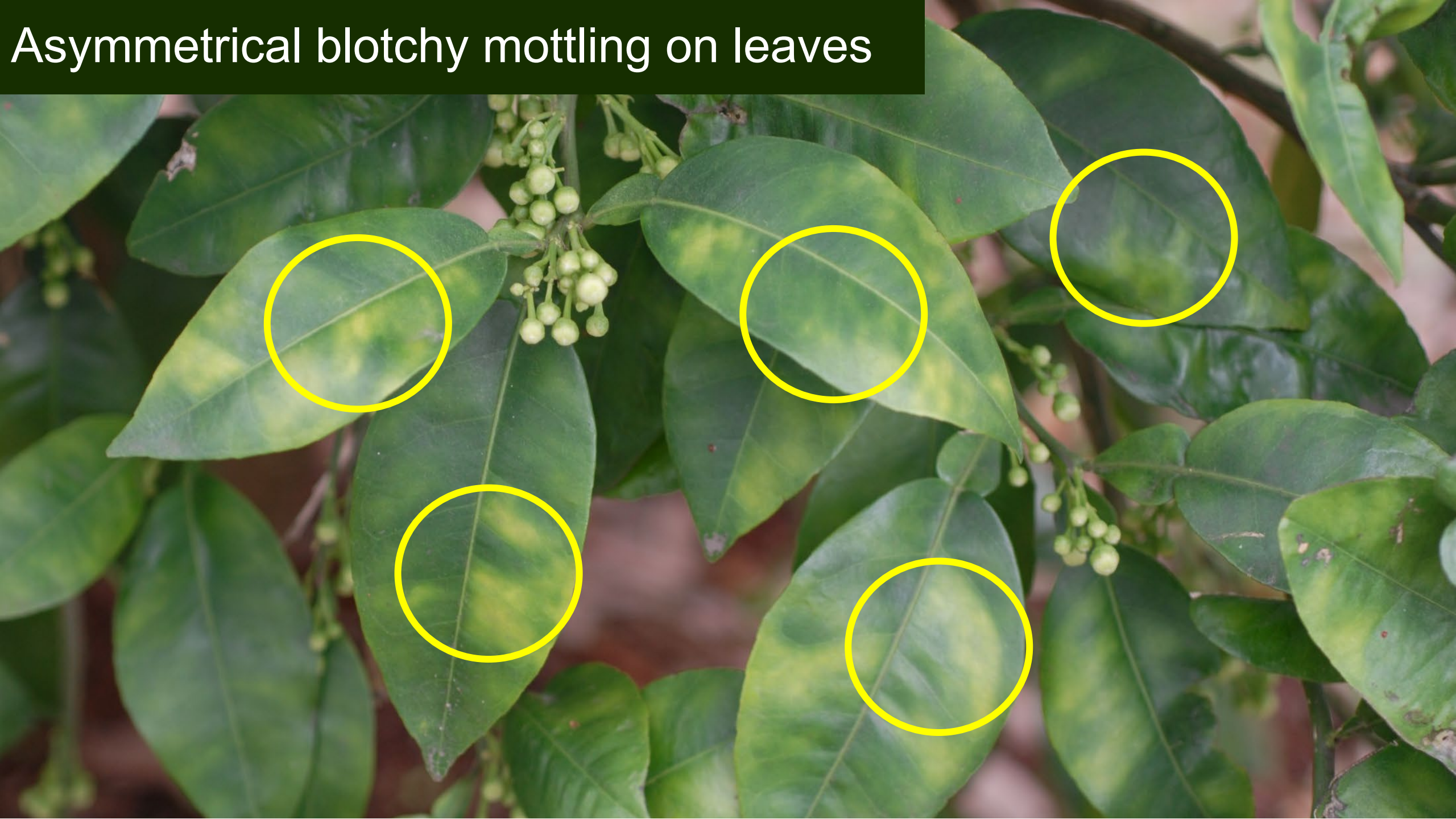
Legend: A red box indicates Quarantined Parishes.

Compass Rose: Located in the bottom right corner, showing North (N), South (S), East (E), and West (W).

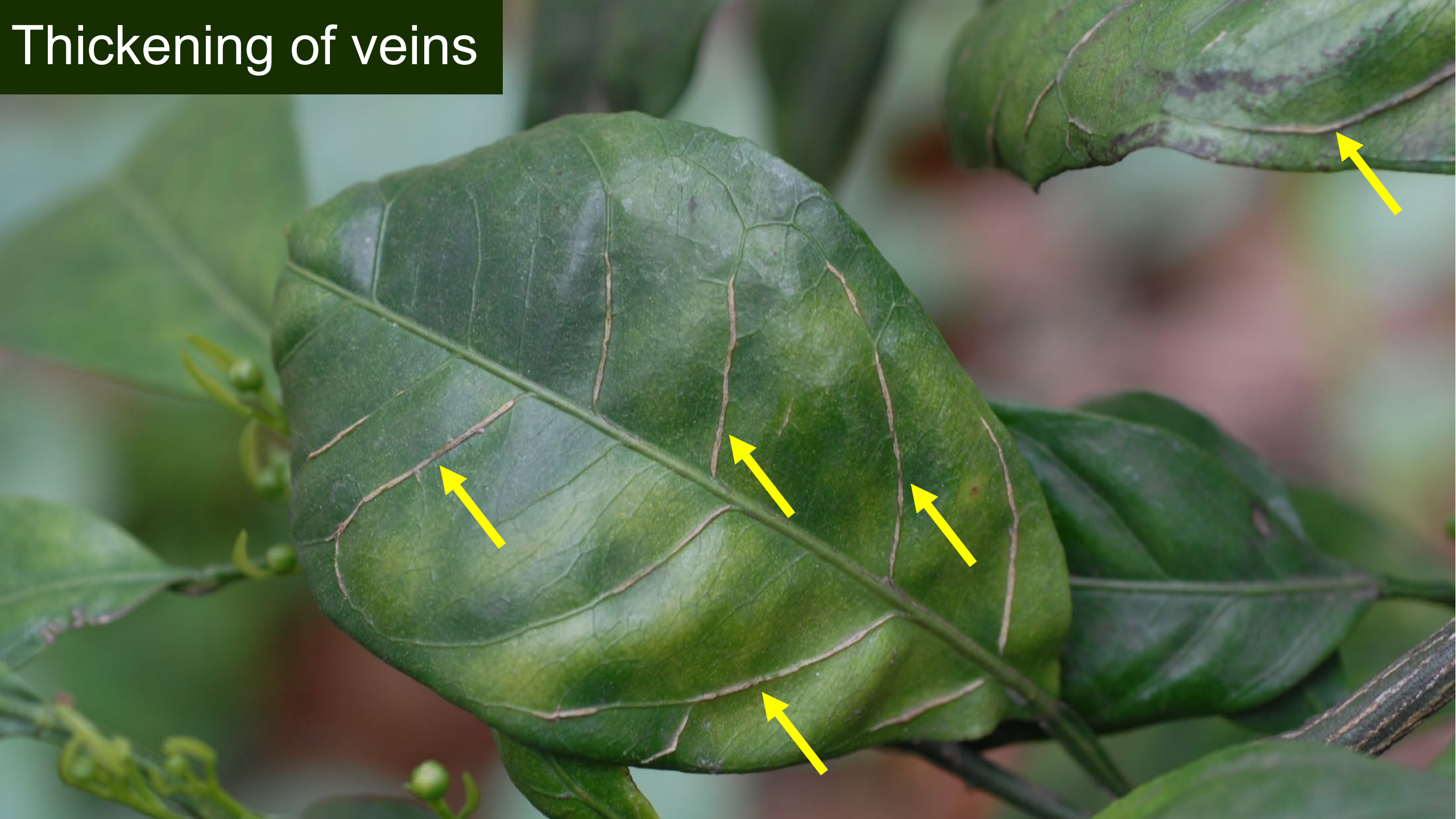
Citrus greening symptoms

- Citrus trees affected by citrus greening may not show symptoms for years.
- Symptoms include asymmetrical blotchy mottling of the leaves.
- Thickening of the veins on both upper and lower surface may occur.
- Random yellowing of the shoots and twig dieback in the canopy.
- Diseased trees may remain stunted and produce lop sided fruits.
- Infected fruits do not ripe uniformly and some green color remains on the ripe fruits.
- Greening-affected fruit tastes bitter, medicinal and sour. Seeds usually abort, and fruit set is poor.
- Diseased trees decline and die within few years.

Asymmetrical blotchy mottling on leaves



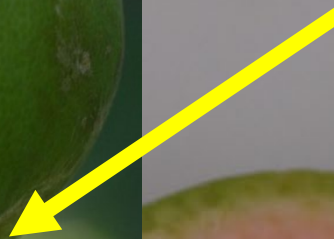
Thickening of veins



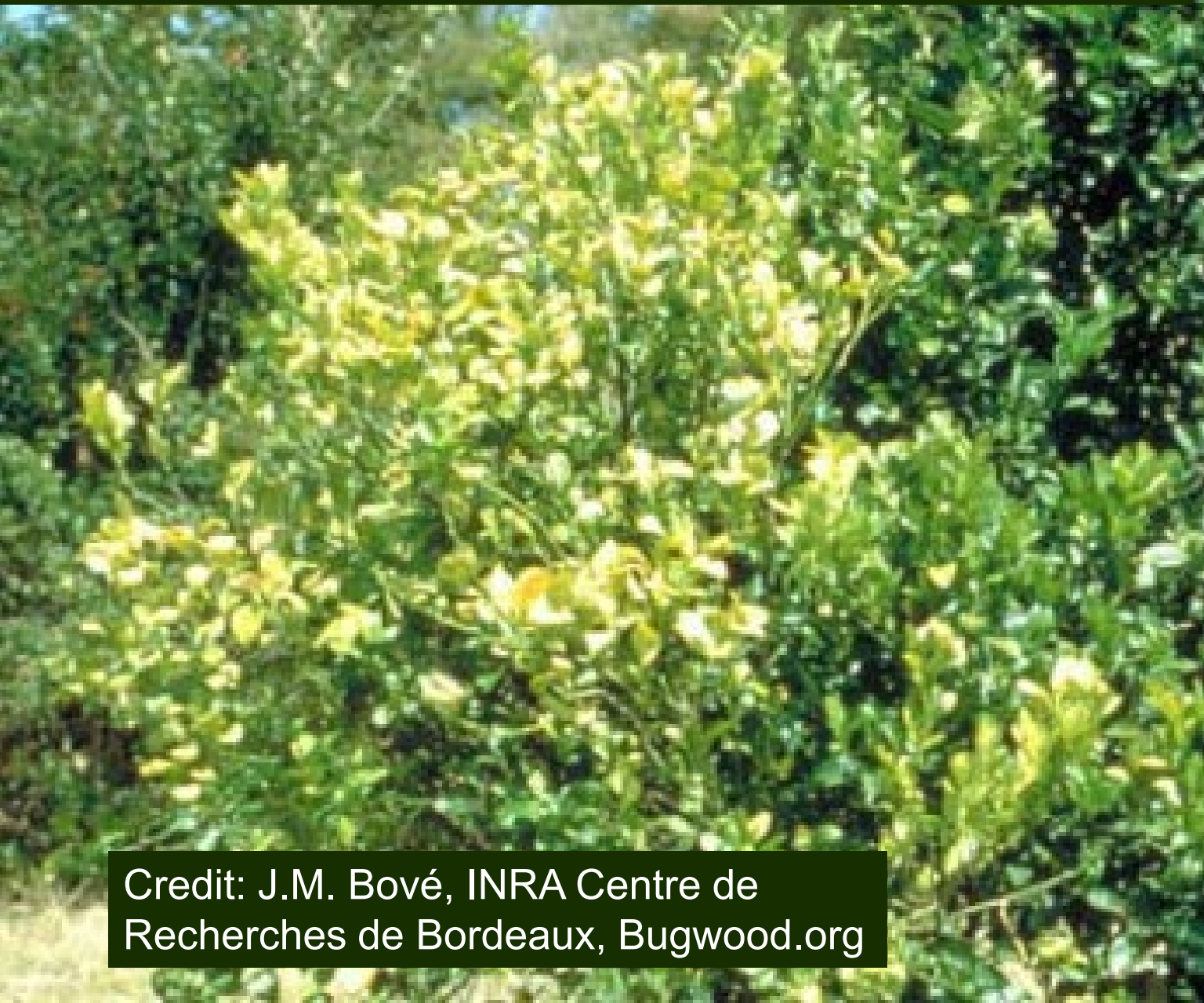
Lop-sided fruit



Blossom end



Yellow shoot and uneven fruit ripening



Credit: J.M. Bové, INRA Centre de
Recherches de Bordeaux, Bugwood.org

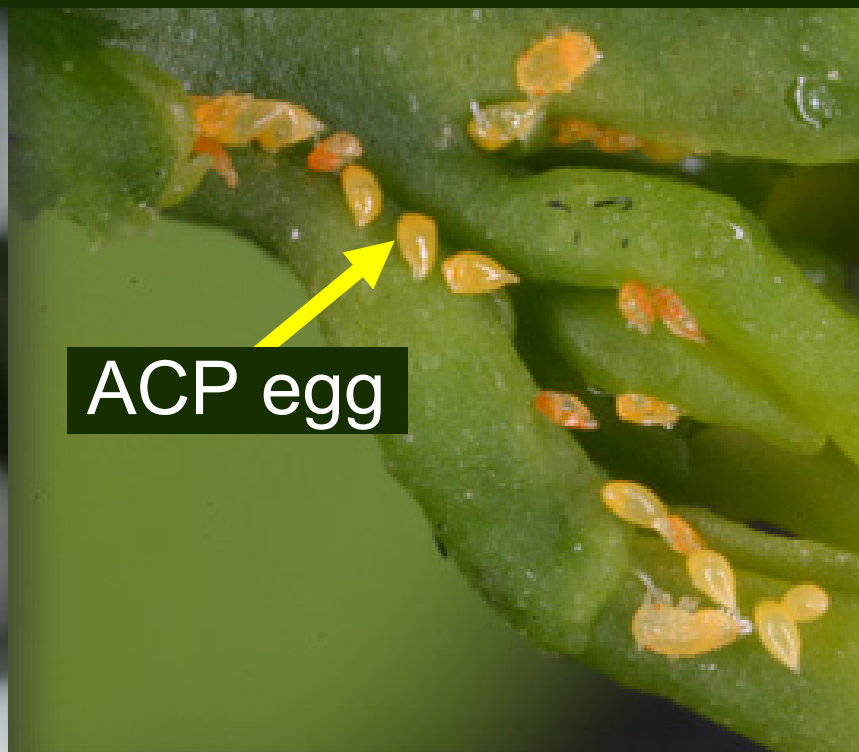


Credit: www.aphis.usda.gov

Citrus greening is vectored by Asian citrus psyllid (ACP)



Waxy white tubules



ACP egg



ACP nymph



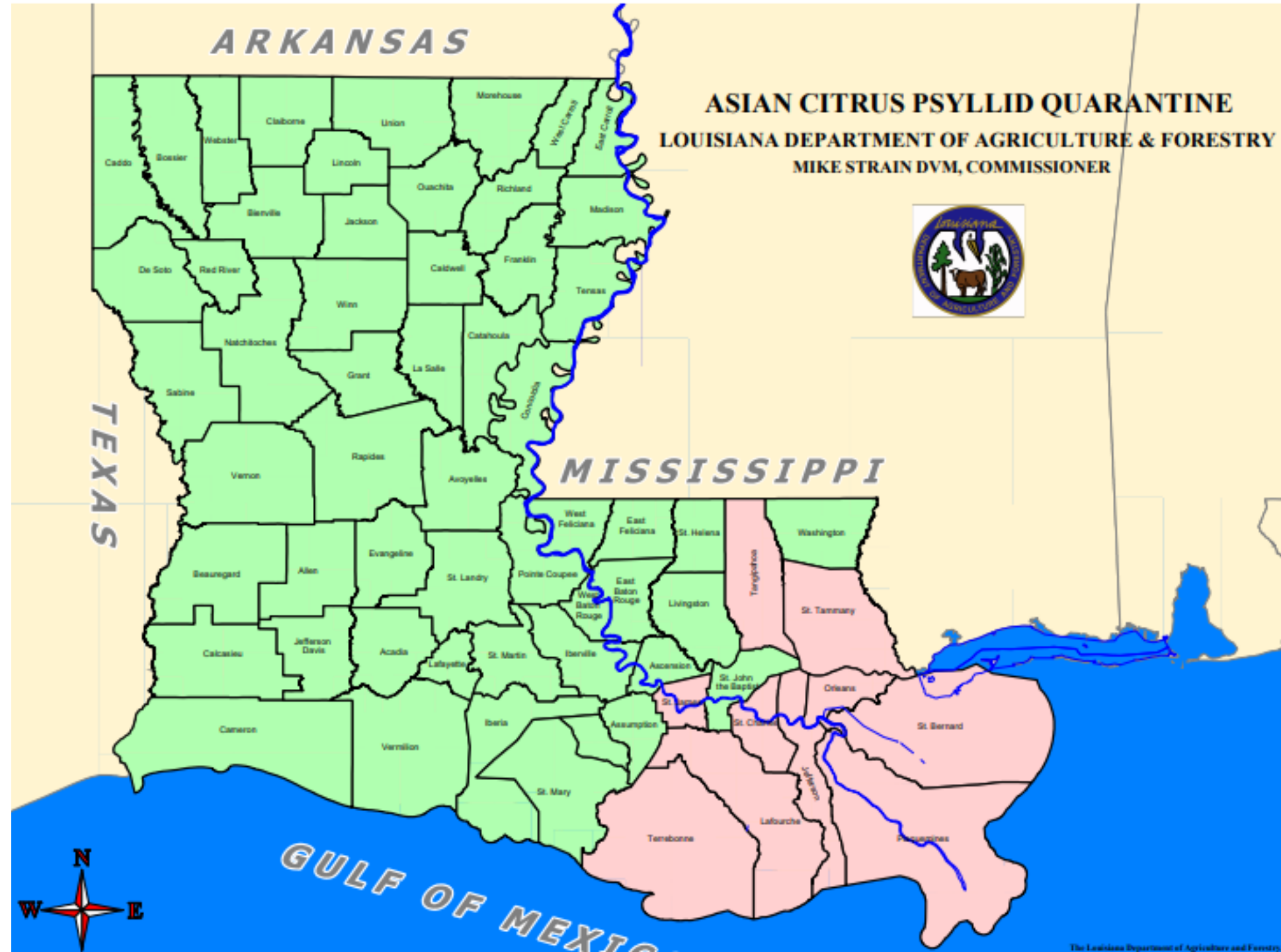
Leaf notching
caused by ACP

Credit: M. O'Neill,
ucanr.edu



ACP adult

Asian citrus psyllid distribution



Citrus greening look alike



Zinc deficiency: uniform interveinal chlorosis

Citrus greening management

- There is no chemical control available for citrus greening.
 - An antimicrobial peptide invented by UC Riverside Scientists has been claimed to control citrus greening disease (<https://news.ucr.edu/articles/2020/07/07/uc-riverside-discovers-first-effective-treatment-citrus-destroying-disease>).
- Once the tree is infected, it stays infected for rest of its life and there is no cure.
- Do not move citrus trees or citrus plant materials from areas under regulatory quarantine.
- Homeowners must buy citrus trees from certified nurseries only.
- Monitor citrus trees regularly for any ACP infestation.
- The Asian citrus psyllid (vector of citrus greening) can be managed with insecticides.



Please post all your questions and results to the message board that was emailed to you.