

# Huanglongbing (HLB; citrus greening) Leaf and Fruit Symptom Identification

## HLB FACTS

- Official name is Huanglongbing (HLB); commonly known as citrus greening
- Bacterial disease
- Leaf and fruit symptoms are the outer expression of vascular damage inside the plant
- Spreads via insect vector or grafting
- All citrus varieties are susceptible

## COMMON LEAF SYMPTOMS

- Blotchy mottle pattern (no symmetry across the mid-vein) will be on upper and lower sides of the leaf
- Vein corking
- Yellow veins (other citrus diseases and tree damage also produce yellow veins)
- Symptoms can vary in intensity (see other side)

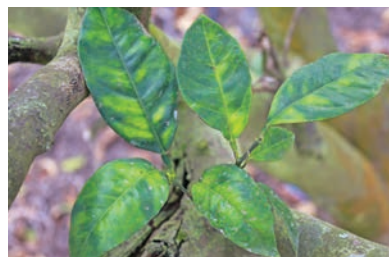
## COMMON FRUIT SYMPTOMS

- **EXTERNAL:** lopsided, small or reduced fruit size, misshapen, color inversion (fruit colors opposite of healthy fruit; infected fruit begins to color from calyx button [where fruit is attached to stem]); whereas, healthy fruit begins to color from stem end (bottom of fruit)
- **INTERNAL:** aborted seeds (seeds not fully developed), curved central core, prominent yellow stain beneath the calyx button

**ALL OF THE SYMPTOMS OF HLB DO NOT HAVE TO BE PRESENT TO DIAGNOSE AN INFECTED TREE.**



Blotchy mottle



Blotchy mottle



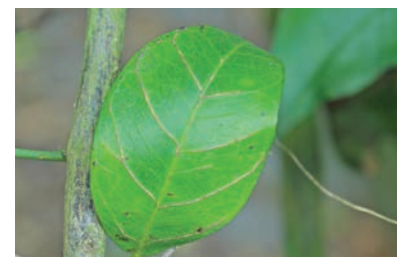
Blotchy mottle and yellow veins



Blotchy mottle



Blotchy mottle



Vein corking



Lopsided fruit (left side is larger than right), aborted seeds



Lopsided fruit (right side is larger than left), aborted seeds, and yellow staining beneath calyx button



Lopsided fruit



Color inversion



**Blotchy mottle**



**Blotchy mottle**



**Blotchy mottle**



**Blotchy mottle**



**Blotchy mottle and vein corking**



**Blotchy mottle**



**Blotchy mottle**



**Blotchy mottle**



**Lopsided fruit**



**Reduced fruit size (top left fruit)**



**Misshapen fruit**



**Misshapen fruit**