

HUANGLONGBING

Citrus Greening and the Yellow Dragon Coloring and Activity Book

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2010



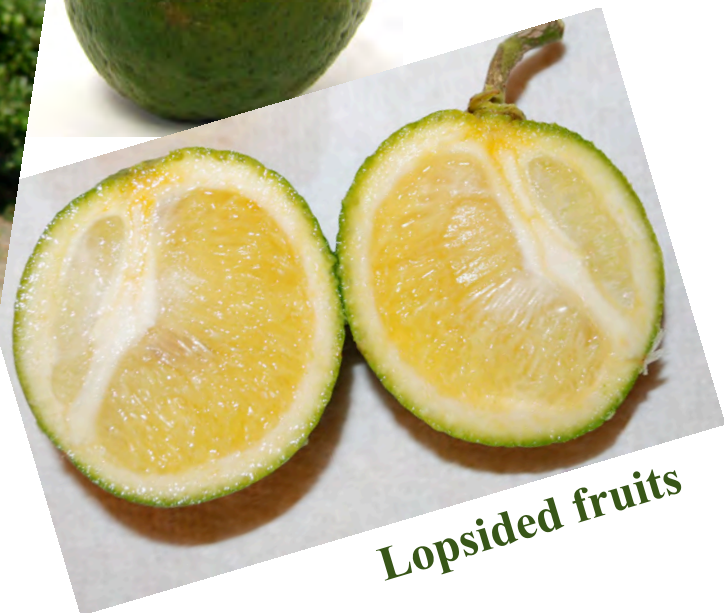
What is Citrus greening?

Citrus greening, also known as Huanglongbing (HLB; yellow dragon disease, in Chinese), is a devastating incurable disease of citrus. The disease apparently originated in China in the early 1900s, and from there it spread to citrus growing areas of Asia, Africa, the Arab peninsula and Brazil. In 2005, greening was detected for the first time in the United States. Other nearby countries with HLB are: Cuba (2008), Dominican Republic (2008), Belize (2009), and Mexico (2009).

The disease is caused by a bacterium (*Candidatus Liberibacter spp.*) transmitted by an insect, the Asian citrus psyllid (*Diaphorina citri*). The disease affects the production and quality of the fruit. There is no cure for greening, and the infected trees eventually die. Greening can be initially diagnosed by symptoms, but confirmation of the diagnosis is only based on results of specific molecular tests.

Disease symptoms include:

Greening of fruits



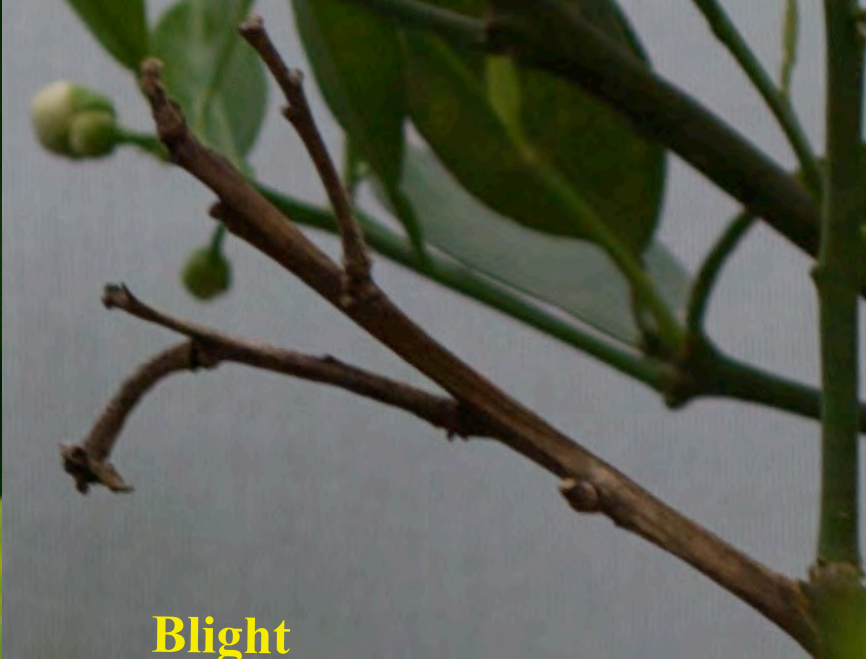
Lopsided fruits



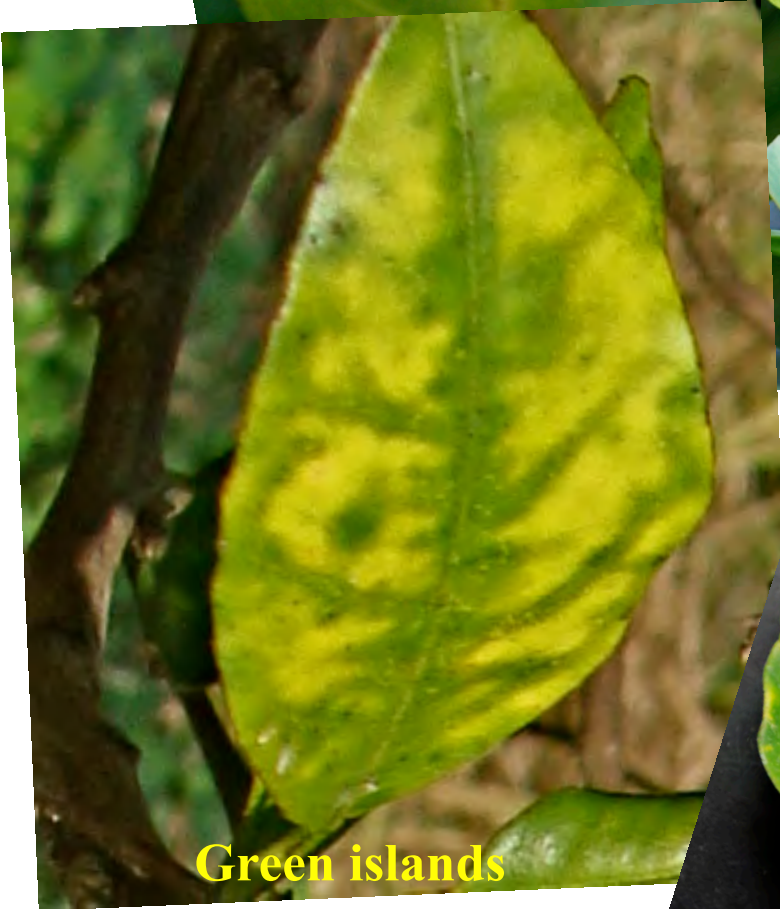
Small fruits



Leaf indentation, vein corking, yellowing



Blight



Green islands



Rabbit ears, vein yellowing



Mottling, blotching

Where is HLB (Citrus Greening) found in the US?

HLB was first found in South Florida in 2005. In 2008 Louisiana was added to the list of “greening” states. By the end of 2009, HLB has spread to most of Florida, and has also been found in Georgia and South Carolina. In 2012, it was confirmed in Texas.

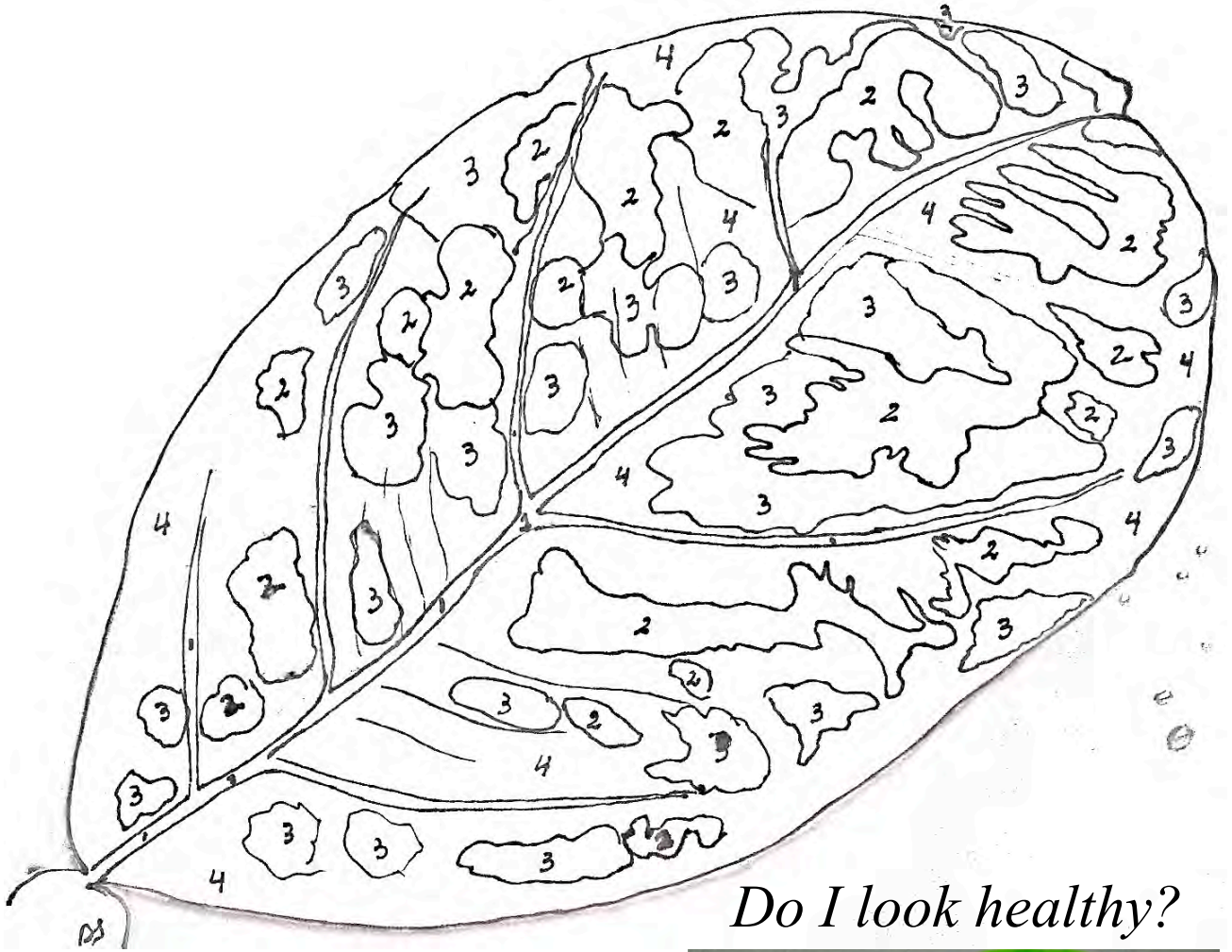


COLOR ME:

1. **ORANGE** IF I AM A HEALTHY-CITRUS STATE
2. **GREEN** IF I HAVE GREENING

HLB on Leaves

HLB affected leaves display mottling: uneven yellow areas or spots. The mottling does not respect the veins and can affect the whole leaf.



Do I look healthy?

COLOR BY NUMBERS:

- 1. DARK BROWN
- 2. LEMON YELLOW
- 3. LIME GREEN
- 4. HEALTHY GREEN

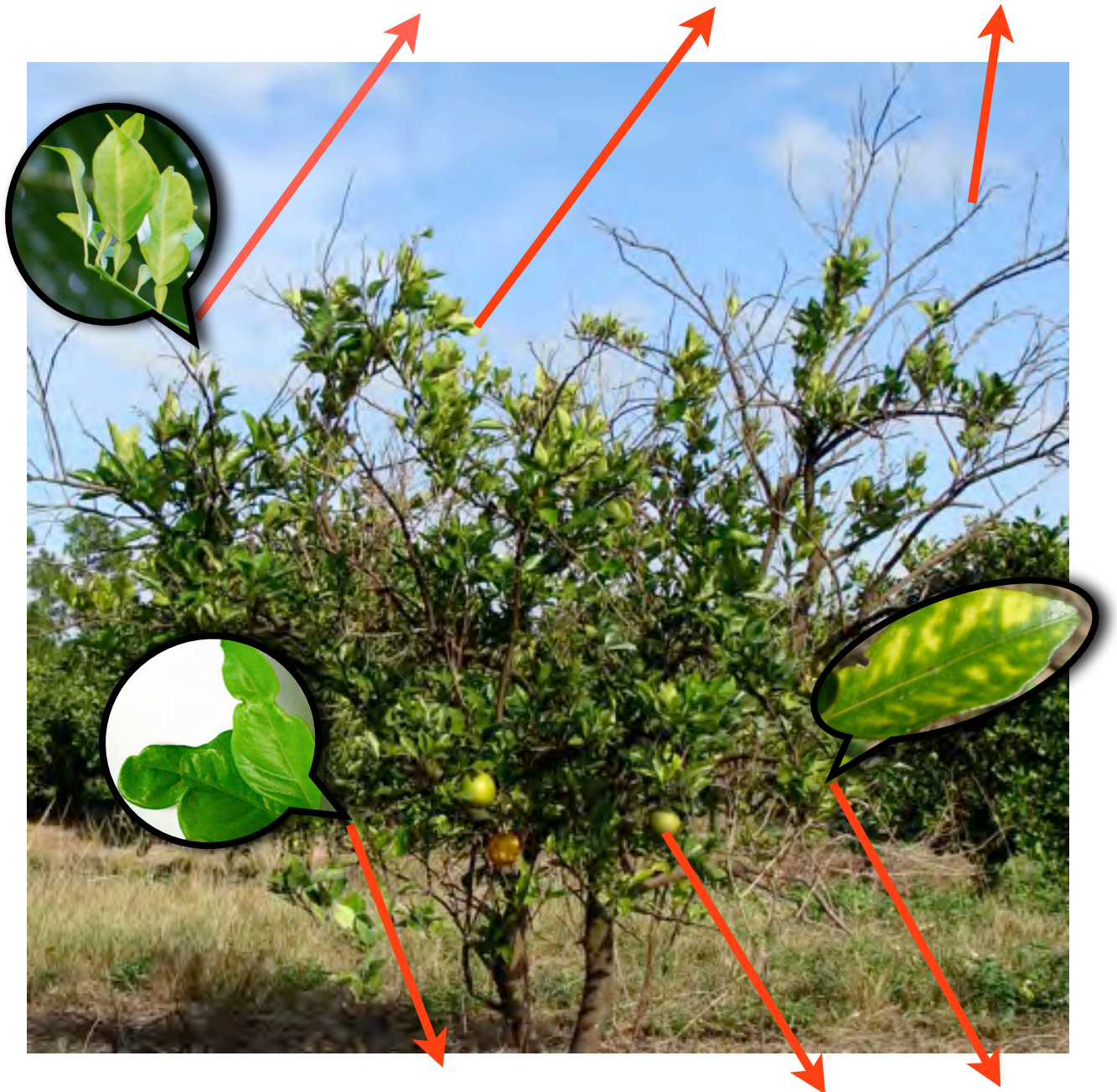


Citrus Greening on Fruits

Draw a copy of the fruit on the right side of the page and color it. Pay close attention to the asymmetrical shape of the fruit and the vein discoloration.



Overall Appearance of the Tree



LABEL ME:

mottling, blotching

yellowing

rabbit ears

leaf indentation

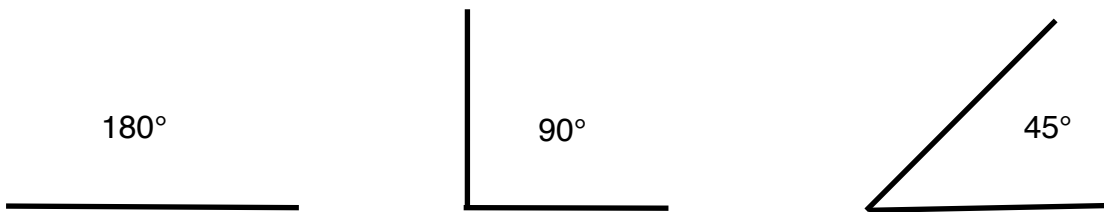
blight

small fruit

The Vector

The vector transmits the disease from host to host. In our case, the vector is an insect: the Asian citrus psyllid, which can transmit greening from plant to plant. The psyllid has a complex life cycle that includes eggs, nymphs and the adult. The adult psyllid can be easily recognized because it sits at a 45 degree angle on stems and on the lower side of leaves.

LET'S REFRESH OUR ANGLES!



At what angle is the psyllid sitting on the leaf?

- 180°
- 90°
- 45°

FIND THE WORDS:

t w s i e r a l l g s e
d e g r o t c e v i i l
s e n a g s d t y a p e
l g i b r e t t i b s e
g n n b s n a r l m y u
m i e i e u e h o o l t
i l e t w t r t p n l t
d t r e c o p t s u i o
e t g a r m l y i a d l
r o b r y o m l d c l w
b m s s s d i s e a s e
s e t n o g a r d y n r

greening yellowing mottling vector
psyllid bacteria bitter lopsided
rabbit ears dragon HLB citrus
disease symptoms

YELLOW IS MY COLOR!



WHAT CAN YOU DO TO PROTECT YOUR CITRUS?

1. Familiarize yourself with the symptoms.
2. Inform family and friends about citrus greening and how it affects citrus.
3. Inspect your citrus trees.
4. If you find a tree with greening symptoms, contact the Texas Department of Agriculture (800-835-5832) or your local AgriLife Extension county office.
(<http://agrilife.tamu.edu/locations-window>).
5. You may also collect sample(s) and submit them for diagnosis.

Samples from *Cameron, Hidalgo, Willacy, Starr, Zapata, Jim Hogg, Brooks, and Kenedy* counties should be sent to Texas A&M Kingsville –Citrus Center (Weslaco).

<http://kcc-weslaco.tamu.edu/>

Samples from *rest of Texas* should be directed to the Texas Plant Disease Diagnostic Lab (College Station)

<http://plantclinic.tamu.edu>.

Learn more about HLB and other citrus diseases, and how to collect and submit a sample at:

<http://texascitrusgreening.org>

YOU CAN MAKE A DIFFERENCE!

Revised 01/2012

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The development of this coloring and activity book is a project of an AgriLife Extension Plant Pathology team consisting of Greta Schuster, Ronald French, Sheila McBride and Kevin Ong.

ACKNOWLEDGEMENTS

This booklet is made possible with funding from Texas Department of Agriculture and Texas Citrus Mutual.



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