



# Know, Sow, Grow Flagler County

UF/IFAS Extension Flagler County

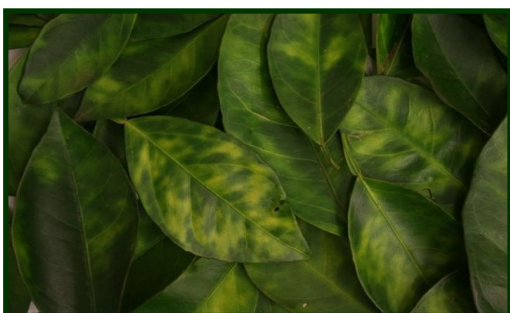
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## Getting A Handle On Citrus Greening (Huanglongbing)

**Mimi Vreeland, Flagler County Horticulture Extension Agent**

Citrus Greening is a disease that seems to be the hot topic of this past winter season. More homeowners have come into the Bunnell Extension Office with citrus leaf and fruit samples of Citrus Greening than in years before. While there is no immediate cure for this disease, research suggests several preventatives and potential treatments that seem to be working, though nothing is documented as fool-proof.

**DIAGNOSIS:** Symptoms of Citrus Greening usually start as leaf vein yellowing and/or leaf mottling that some refer to as asymmet-



Citrus Greening, Photo Credit: M. Vreeland

ric or “blotchy” leaf mottling. In the early stages of the disease, the symptoms often resemble nutrient deficiencies of iron, zinc, and manganese, which are common deficiencies in sandy or sandy-loam soils which don’t chelate macro- and micro-nutrients as well as clay-loam soils.

As the disease progresses, the yellowing will spread throughout the year, especially on young citrus trees, and eventually display twig dieback, causing the tree and fruits to decline within just a few years. If any fruits develop, they will be few in number and will be seedy with a bitter taste. The disease is believed to be caused by the bacterium *Candidatus Liberibacter asiaticus* better known as “Huanglongbing” and transmitted by a vector, the Asian citrus psyllid *Diaphorina citri* which feeds on citrus leaves.

This disease has been troubling citrus farmers and scientists for several years, because no immediate cure has been developed. However, through continuing research at UF, several treatment measures have been discovered that appear promising as a means to prevent the establishment and spread of Citrus Greening. These potential treatment measures are discussed in the following paragraphs.

**ENVIRONMENTAL CONTROL:** One way to stave off the negative effects of Huanglongbing infection, is to maximize a citrus tree’s immune function which starts in the roots. Therefore, it is important to keep the soil’s pH optimal for the tree’s uptake of nutrients and healthy growth. The optimal pH range for citrus trees is 5.8-6.5. Please bring soil samples to our Extension office for testing. We can advise you on ways to add particular soil amendments that will help to bring your soil pH within that optimal range.

**BIOLOGICAL CONTROL:** A beneficial parasitoid, *Tamarixia radiata*, attacks and kills the Asian Citrus Psyllid. Because this parasitoid is a specific predator to only this psyllid, it has no negative impact on other insects which may be beneficial to your garden. If you have citrus growing in your home garden and would like obtain this parasitoid for release in your home garden, please submit an application at the following website: <http://freshfromflorida.com/Divisions-Offices/Plant-Industry/Bureaus-and-Services/Bureau-of-Methods-Development-Biological-Control/Asian-Citrus-Psyllid-Biological-Control/Biological-Control-of-Asian-Citrus-Psyllid-in-Dooryard-Citrus-and-Ornamentals/Tamarixa-Release-Application>.

**OAK LEAF SPRAY:** Citrus farmers have noticed that citrus trees growing under oak tree canopies, have remained healthy, while other citrus trees planted away from oak trees have shown decline from Citrus Greening Disease. This suggests that oak leaf matter contains an antibacterial substance which may prevent the spread of Huanglongbing. *Continued on next page*

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(Citrus Greening, continued from page 1)

Lorenzo Rossi, a UF/IFAS citrus research scientist, in collaboration with the USDA, has discovered that oak leaf extract applied to citrus leaves seems to display curative effects on citrus and improve citrus leaf physiology. Because the use of oak leaf extract is still under experimentation, no DIY formula for oak leaf extract has been disclosed at this time. One recommendation, in the meantime, is to use oak leaves as mulch around your citrus trees by evenly distribute oak leaves inside the tree's entire dripline 1-2" thick. Make sure not to pile any leaves around the base of the tree, as this could negatively affect the tree's graft zone. Another idea is to make your own "extract" by soaking leaves in a bucket of water for a month or two until the water turns dark brown and then pour the water into a spray bottle to spray directly on the citrus leaves.

**CITRUS COVER CROPS:** Farmers that use cover crops which are planted near the citrus trees' canopies have noticed healthier citrus yields. Cover crops like legumes, brassicas, and clovers not only help to attract beneficial insects, they also improve water and nutrient uptake by the citrus tree as well as deterring the growth of noxious weeds and pests. Adding a cover crop near the canopy of your home citrus may also prove beneficial to your own citrus tree's health.

Please contact our Extension office at 386-437-7464 for further updates on Citrus Greening treatment methods as scientists continue their research to tackle this disease and its devastating impact on Florida's \$9 billion citrus industry.

## Change in Watering Restrictions

A change to Daylight savings time means a change in watering restrictions. Daylight saving time begins the second Sunday in March and ends the first Sunday in November. Residential watering is only permitted on the following days:

Wednesday/Saturday: Odd numbered addresses

Thursday/Sunday: Even numbered address

- An odd numbered address is one ending in 1, 3, 5, 7 or 9.
- An even numbered address is one ending in 0, 2, 4, 6 or 8.
- Water only when needed and not between **10 a.m. and 4 p.m.**
- Water for no more than one hour per zone.
- Restrictions apply to private wells and pumps, ground or surface water and water from public and private utilities.
- Some exceptions apply. Visit St John's Water Management at <https://www.sjrwmd.com/wateringrestrictions/>

**Save the Date!**

**Master Gardener Spring Fling and Plant Sale**

**May 2, 2020**

**9 am to 1 pm**

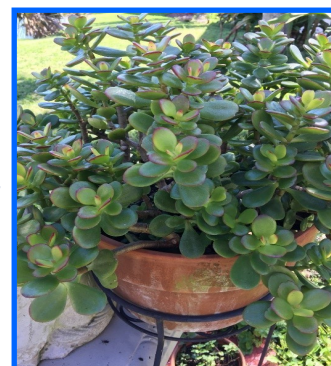
**Flagler County Extension Office**

**Jade**

## Plant (*Crassula ovata*)

Connie Balliet, Master Gardener Volunteer

Jades are succulent plants with the ability to store water in their leaves, stems and roots. Jade has a thick, succulent trunk and branches, and can resemble a small tree. Their slow growth habit and tolerance of dry root-bound conditions make them perfect for a bonsai like house plant. The thick, succulent leaves are opposite, obovate and often have red edges. The leaves do not have petioles, so they are attached directly to the stem. A Jade plant may grow for many years without blooming. When flowers do appear, they form in small, white or pink clusters at the tips of branches. Blooms are uncommon in the areas of the country with high humidity, such as Florida.



Credit: C. Balliet

Jades are desert plants and do well in hot arid part shade/part sun environments ranging from 30 to 50 percent humidity. Fast-draining soil with infrequent watering is a necessity to help avoid root-rot. In Florida, too much rain and irrigation prevent this plant from use as a landscape plant in all but the driest soil. Jades propagate very easily by cuttings. For additional information visit <https://edis.ifas.ufl.edu/fp153>; <https://edis.ifas.ufl.edu/pdffiles/FP/FP15300.pdf>;

[http://gardeningolutions.ifas.ufl.edu/mastergardener/outreach/plant\\_id/flowers\\_indoor/jade\\_plant.html](http://gardeningolutions.ifas.ufl.edu/mastergardener/outreach/plant_id/flowers_indoor/jade_plant.html)

## Spring Checklist

**Lori Powell, Master Gardener Volunteer**

Spring is coming. After a very mild winter, it's time to get your yard and garden ready!

- **Plant**

You can start planting many varieties of annuals, perennials, vegetables and bulbs. See the Spring Planting Guide on page 5 and visit:

[http://edis.ifas.ufl.edu/topic\\_annual\\_landscape\\_plants](http://edis.ifas.ufl.edu/topic_annual_landscape_plants),

[http://edis.ifas.ufl.edu/topic\\_bulbous\\_flowers](http://edis.ifas.ufl.edu/topic_bulbous_flowers),

[http://edis.ifas.ufl.edu/topic\\_herbs](http://edis.ifas.ufl.edu/topic_herbs) and

[http://edis.ifas.ufl.edu/topic\\_vegetable\\_gardening](http://edis.ifas.ufl.edu/topic_vegetable_gardening).

- **Prune**

Use sharp tools and clean them in between cuttings. Not cleaning tools between plants can transfer diseases from one plant to another. Use rubbing alcohol or bleach to clean tools.

**Azaleas:** Prune azaleas when they have finished blooming to reduce their size and improve their form. Do not prune after mid-summer as doing so will decrease number of flowers in the coming spring. See [http://edis.ifas.ufl.edu/topic\\_azalea](http://edis.ifas.ufl.edu/topic_azalea).

**Shrubs:** Prune when the dormant season ends and new growth begins. Do not remove more than 1/2 to 2/3 of foliage at one time.

**Trees:** Prune dead, diseased branches as well as branches that cross or touch each other. For more information see

<https://gardeningolutions.ifas.ufl.edu/care/pruning/pruning-and-maintaining-trees.html>

- **Mulch**

Add 2-3 inches of mulch to planting beds and around trees to control weeds and conserve moisture during dry weather.

Mulch around trees to the dripline and beyond but avoid piling mulch on the tree trunk which could cause rot. Visit

<https://gardeningolutions.ifas.ufl.edu/care/planting/mulch.html>.

- **Fertilize**

**Landscape Plants:** Most established plants and trees don't need to be fertilized. Palms and citrus trees should be fertilized with products specifically formulated for them. Read the label and follow the directions on the package. More is not better when applying fertilizer! When selecting a fertilizer look for products that are "slow release." Visit

[http://edis.ifas.ufl.edu/topic\\_landscape\\_fertilization](http://edis.ifas.ufl.edu/topic_landscape_fertilization) and [https://ffl.ifas.ufl.edu/handbook/Fertilize\\_Appropriately\\_v\\_Sept09.pdf](https://ffl.ifas.ufl.edu/handbook/Fertilize_Appropriately_v_Sept09.pdf)

**Lawns:** The grass may look a bit brown now from the lack of nutrients and cooler weather. Do not be in a hurry to fertilize, the grasses are dormant and the fertilizer will only help the weeds grow rather than the grass. It is best to wait for the warmer weather in mid-March or early April to begin

fertilizing. Be sure your lawn is not being mowed shorter than 3-4". Mowing your lawn too short causes a weak root system and in turn leaves your lawn vulnerable to disease. Lawns should be fertilized only after new growth has started.

- **Look for pests**

Monitor your landscape weekly for harmful insects such as aphids, mealybugs, thrips, Oleander caterpillars, hornworms and whiteflies. Knowing which insects commonly attack a plant can aid in identification and treatment.



Oleander Caterpillar, Photo credit: Paul Choate, University of Florida

The Oleander caterpillar can quickly defoliate ornamental plants such as Oleanders. Application of insecticides should be considered as a last resort. *Bacillus thuringiensis*, a microbial insecticide that is sold under various trade names, is a bacterium that kills only lepidopteran larvae. It has no toxicity toward beneficial insects.

Clusters of mealy bugs create white masses on stems that can slow growth and kill plants. Hose off mild infestations. For more serious problems apply insecticidal soap.



Mealybug, Photo credit: Lyle Buss, University of Florida

To control pests, choose the least toxic methods that will manage the pest. Spot treat where pests are abundant and use selective chemicals rather than broad spectrum chemicals.

- **Check Irrigation System**

Outdoor irrigation accounts for more than half of an average homeowners daily water use. Watering pavements and streets wastes water. Make sure your sprinkler heads are properly adjusted and replace ones that are broken. An irrigation system running during a rain storm could be an indication that the irrigation system's rain sensor needs to be replaced.

Overwatering your lawn can promote weeds and insects pests, in addition to weakened grass roots.

Don't "set it and forget it", only water when needed. Use a rain gauge to monitor rainfall. Most lawns only require 3/4-1 inch of water per week. [http://edis.ifas.ufl.edu/topic\\_landscape\\_irrigation](http://edis.ifas.ufl.edu/topic_landscape_irrigation), <https://gardeningolutions.ifas.ufl.edu/care/irrigation/>



## Put Down Those Mothballs (Unless You Have Clothes Moths)

Mary Ellen Setting, Master Gardener Volunteer

Homeowners and gardeners have long sought solutions to repel mice, squirrels, snakes and other wildlife from their homes and to keep dogs and cats out of their gardens. Several old wives' tales are still circulating that should never be considered as a viable solution. One pest control myth that has been perpetuated for decades is the use of mothballs to keep animal pests away.

Mothball products, also sold as flakes, crystals and bars, are solids that breakdown to a gas, fumigating the area. Their intended use is to kill clothes moths and their eggs on woolen clothes and blankets, feathers, furs and animal hair products like bristles. Mothballs contain high concentrations of either naphthalene or paradichlorobenzene and are insecticides

federally regulated by the U.S. Environmental Protection Agency (EPA) and the Florida Department of Agriculture and Consumer Services (FDACS). The label of any pesticide specifies exactly where and how to legally use the product. (The term

'pesticide' includes insecticides, herbicides, fungicides, rodenticides, etc., intended to control, destroy, repel or attract a pest.) The pesticide label is the law. Using mothballs in a way not listed on the label is illegal and can harm people, pets and the environment.

A common misuse of mothballs is to place them under the sink or in the attic to repel mice. Mothballs should only be used in a tightly closed container that will keep pesticide fumes from accumulating in living spaces where people and pets will be exposed to the vapors. People and pets can become seriously ill if mothballs are inhaled, eaten or touched. Common symptoms of exposure include headaches, nausea, dizziness, or vomiting. Small children have also developed diarrhea, fever, abdominal pain after eating naphthalene. Dogs may experience lethargy, vomiting, diarrhea, lack of appetite and tremors. Call the Poison Control Center at 1-800-222-1222 for emergency medical advice or contact a veterinarian if a pet has eaten a mothball.

Mothballs have also been placed in the garden to repel snakes, dogs or cats. Both naphthalene and paradichlorobenzene products turn into gases and have a half-life of less than one day and about 31 days, respectively. A 'half-life' is the time it takes for a pesticide to be reduced by 50% of its original amount. The chemicals may bind to the soil and be taken up by plants and are considered to be moderately toxic to fish.

Follow UF/IFAS Extension recommendations for proper, science-based pest control. Never use a pesticide in a way

that is not explicitly detailed on the product label.

For more information, visit

<https://edis.ifas.ufl.edu/pdffiles/IG/IG09000.pdf>;

<https://edis.ifas.ufl.edu/pi254>;

<https://conference.ifas.ufl.edu/gardener15/documents/Mothball%20info.pdf>; <http://npic.orst.edu/factsheets/half-life.html>;

<http://npic.orst.edu/ingred/ptype/mothball/index.html>.

## Plant Shopping Basics

Kathi Wright, Master Gardener Volunteer

Oh, to pick out that ideal plant, dig through soil, and place it lovingly where it will grow and thrive! Wait. First, we must pick out that perfect plant. It would be nice if we could just sashay into a big box store grab the first plant that catches our eye and know everything will be amazing. Unfortunately, it's not quite that easy. But with these basic pointers, you'll have a much better chance at getting the highest quality plant.

- Location is where you start. A reputable nursery will more likely have healthier plants that have been watered and cared for. Big box stores may sell at a discount, but you may likely pay in the end with a plant that is diseased or riddled with insects.
- Now tip that plant out of its container and look at the roots. Look for white or light brown roots. Roots that are dark or stink aren't a good sign. If roots are packed or circled, that's okay if you can gently untangle them. If there's too much soil, you may be looking at a plant that was just repotted in a larger container. In that case you're paying for the larger container, not the developed root system.
- Check out the soil dryness. Is it super dry? That may indicate a stressed plant that can take longer to grow nicely. Take a hard look at the leaves for leafspot or insects. For woody plants, you want to be sure there aren't a lot of broken branches

Two other quick tips.:

- Read this: [Selecting Plants, Common Landscape Pitfalls that Affect Plant Health – Plant Quality Edition](https://gardeningolutions.ifas.ufl.edu/design/selecting-plants.html), <https://gardeningolutions.ifas.ufl.edu/design/selecting-plants.html>
- Visit the Flagler County Master Gardener Spring Plant Sale on May 2 at the [Flagler County Extension Office](#). Bring your questions and find a gorgeous plant for your home or landscape.

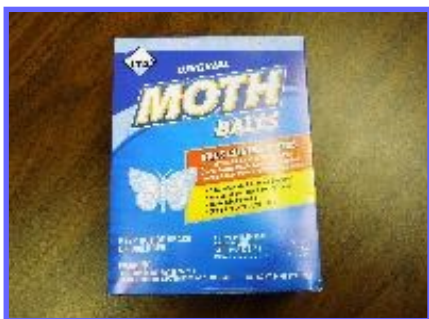


Photo Credit: F. M. Fishel, US/IFAS

# Spring Gardening

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- WEED
- IRRIGATE
- PRUNE
- TURF
- PEPPERS
- FERTILIZE
- TOMATOES
- MOW
- GARDEN
- SQUASH
- PLANT
- SOW
- MULCH

## Spring Planting Guide

### Vegetables

- Beans
- Cantaloupes
- Cucumbers
- Eggplant
- Leafy Greens
- Peas
- Peppers
- Potatoes
- Squash
- Tomatoes

### Annual/Perennials

- Angelonia
- Caladium
- Calla Lilly
- Dianthus
- Gazania
- Petunia
- Salvia
- Zinnia

### Herbs

- Basil
- Cilantro
- Dill
- Fennel
- Mint
- Oregano
- Parsley
- Sage
- Thyme

For more information on planting and maintaining your garden visit: <https://edis.ifas.ufl.edu/vh021>



## UF/IFAS Extension Flagler County Master Gardener Volunteers

Flagler County Extension Office  
150 Sawgrass Rd  
Bunnell, FL 32110

Phone: 386-437-7464  
Fax: 386-586-2102  
E-mail: [mgardener@flaglercounty.org](mailto:mgardener@flaglercounty.org)

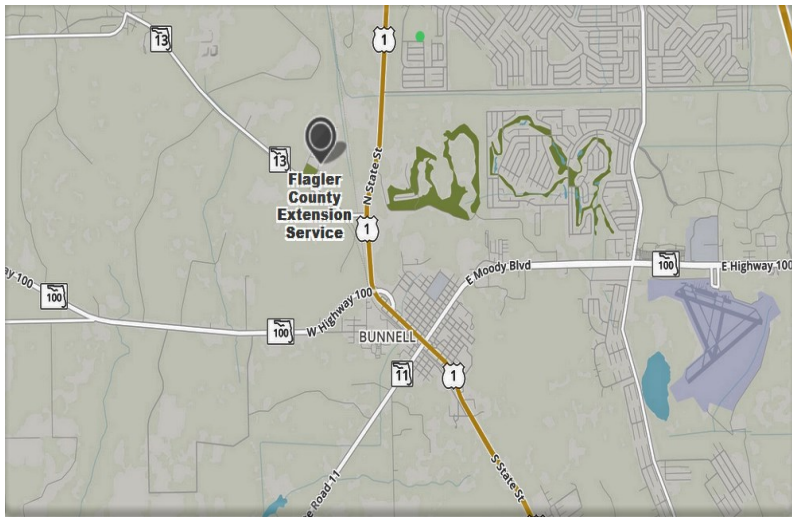


### Our Mission

To assist Extension Agents in providing research-based horticultural education to Florida residents.

### Our Vision

To be the most trusted resource for horticultural education in Florida.



## Up-Coming Events

### Master Gardener Spring Fling and Plant Sale - May 2, 9 am to 1 pm

Flagler County Extension Office

Purchase native plants, herbs, annuals, perennials, vegetables and succulents. Sale proceeds support UF/IFAS Flagler County Master Gardener events and outreach programs.

### Arbor Day—May 9, 9 am to 2 pm

Featuring a tree give-away, butterfly release and tent, entertainment and fun activities for all ages. Admission is free, and all activities are free.

975 Central Ave. Palm Coast Town Center

### Washington Oaks Gardens State Park

Master Gardener Volunteers are at the Washington Oaks Gardens State Park Plant Sale on the second Saturday of every month from 10 a.m. to 2 p.m. to answer questions and provide advice. (March & April dates cancelled due to COVID-19 Virus)

### Master Gardener Plant Clinic

Master Gardener Volunteers are available to respond to lawn, landscape and pest management questions with research-based solutions from the University of Florida from 9 a.m. to 11 a.m. on the last Saturday of every month at the Flagler County Public Library, Palm Coast. (March & April dates cancelled due to COVID-19 Virus)

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UNIVERSITY OF FLORIDA



## Stay Connected!

Flagler County Extension: <http://flagler.ifas.ufl.edu>

University of Florida Solutions for Your Life: <http://sfyl.ifas.ufl.edu>

Florida-Friendly Landscaping™: <http://ffl.ifas.ufl.edu>

UF/IFAS Gardening Solutions: <http://gardeningsolutions.ifas.ufl.edu/>

University of Florida Master Gardener: <http://gardeningsolutions.ifas.ufl.edu/mastergardener>

The Flagler County Master Gardener and Horticulture program is open to all regardless of gender, race, color, nationality, creed or disability.