

Urban Dirt

Gardening Events and Information for Texans

The Downlow on Bt

Article and photos by Terri Simon, Master Gardener

Several of us keep it on hand, but how many of us know how it works or where it comes from? Using microorganisms in the garden has been dated back to ancient times. Egyptian pharaohs had gardeners who used bacteria to control pests in Egyptian gardens and tomb chapels. *Bacillus thuringiensis*, commonly referred to as Bt, was discovered in 1901 by a Japanese scientist named Shigetane Ishiwata. He isolated the bacteria from dead silkworms who had been afflicted with “sotto disease”. He named it *Bacillus sotto*. A German scientist, Ernst Berliner, found a similar bacteria in 1911 in the German state of Thuringia. It was in dead Mediterranean flour moth larvae and he named the bacteria *Bacillus thuringiensis*. He found inclusions in Bt which were also seen in 1927 by another researcher and in 1953 the refractile inclusions were called “parasporal crytaals”. The crystals were toxic and made of protein. They can kill certain species of insects but are harmless to humans, the environment and some beneficial insects. The bacteria is found throughout the world.

Bt is an organic pesticide used to control insect pests. The World Health Organization uses it to kill mosquitoes. France began using



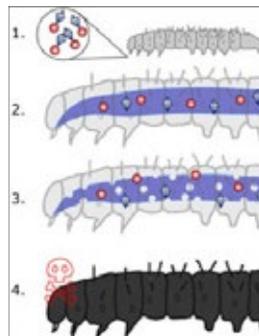
Examples of Bt products on the market.

Photos courtesy of Walmart.com

it in 1938 to control flour moths and the U.S. began producing and using it in 1958. Beginning in 1996, scientists began engineering crops such as cotton and corn by inserting Bt genes into them. If a gene from one organism is inserted into a different organism, the final product is called a genetically modified organism or GMO. It can also be called a transgenic plant. Insulin is produced in nearly the same way. Insulin genes from pigs are inserted into bacteria. When the bacterium makes insulin, it is purified and used for medications.

Bt has to be eaten to cause a pest’s death. Its toxins break down in the insect’s gut and begin making holes in its lining. Death follows within a few days. Bt breaks down quickly and does not harm ground water. Sunlight can also break it down. Bt must be eaten by larval insects since it has no effect on adults. It will not work on pests which attack the root systems or internal parts of a plant since it is applied topically. In the 50 years it has been in use only two allergy cases have been documented. One person already had a disease and the other person had several severe food allergies. You can safely use it in your garden with minimal consequences.

1. Insect eats Bt crystals and spores.
2. The toxin binds to specific receptors in the gut and the insects stops eating.
3. The crystals cause the gut wall to break down, allowing spores and normal gut bacteria to enter the body.
4. The insect dies as spores and gut bacteria proliferate in the body.



Upcoming Events

March 2017

Green Thumb Gardening Series

Roses: Planting, Growing & Upkeep

Mar. 9, Barbara Bush Library, 6:30 - 8:30 p.m.

Mar. 16, Freeman Branch Library, 6:30 - 8:30 p.m.

Mar. 18, Maude Smith Marks Library, 10:00 - noon

Mar. 21, Spring Branch Memorial Library, 6:30 - 8:30 p.m.

Plant Sale

Mar. 4, Tomato and Pepper Sale and Symposia. Tomato and pepper varieties as well as other vegetables and herbs suited to our summer growing season. 8 a.m.-Symposia, Sale-9 a.m. - 1 p.m. Bear Creek Extension, 3303 Bear Creek Drive, Houston, 77084

Mar. 18, Spring Perennial, Herbs & Peppers Sale: Perennials, herbs and peppers suitable for our area. 8 a.m.-Plant Preview, Sale-9 a.m. - 1 p.m., Campbell Hall, Pasadena Fairgrounds, 7600 Red Bluff Rd., Pasadena, TX

Educational Program

Apr. 20, 6:30- 8:00 p.m., *Stone Fruit* by Herman Auer, Texas Master Gardener. Bear Creek Extension, 3303 Bear Creek Drive, Houston, 77084

Open Garden Day

Mar. 20, 8:30-11:00 a.m., Genoa Friendship Garden, 1202 Genoa Red Bluff Rd., Pasadena, TX
Plants for sale in the Greenhouse.

Mar. 28, Workshops & children's activities, *Roses: Planting, Growing & Upkeep*, 10:00-11:00 a.m. Bear Creek Extension, 3303 Bear Creek Drive, Houston, 77084

April 2017

Green Thumb Gardening Series: Plant advice and tips from the Master Gardeners

Herbs

Apr. 15, Maude Smith Marks Library, 10:00 - noon.

Apr. 18, Spring Branch Memorial Library, 6:30 - 8:30 p.m.

Apr. 20, Freeman Branch Library, 6:30 - 8:30 p.m.

Apr. 27, Barbara Bush Library, 6:30 - 8:30 p.m.

Plant Sale

Apr. 22, Spring Sale and Symposium: Landscape plants and perennials suited to our region. 8 a.m.-Symposia, Sale-9 a.m. - 1 p.m. Bear Creek Extension, 3303 Bear Creek Drive, Houston, 77084

Educational Program

Apr. 20, 6:30- 8:00 p.m., Gulf Coast Fruit Study Group presents: *Stone Fruit* by Herman Auer, Texas Master Gardener. Bear Creek Extension, 3303 Bear Creek Drive, Houston, 77084

Open Garden Day: Meet the Master Gardeners!

Apr. 17, 8:30 -11a.m., Genoa Friendship Garden, 1202 Genoa Red Bluff Rd., Pasadena, TX

Apr. 25, Workshops & children's activities, *Herbs: Growing and Using* 10:00 - 10:45 a.m. Bear Creek Gardens/Extension, 3303 Bear Creek Drive, Houston, 77084

Master Gardener Help Line - (281) 855-5600

Visit txmg.org or contact the Harris County Extension Office, 281.855.5600, coordinator.harrishort@gmail.com for information.

Plant Sales

8:00- 8:45 AM
 Tomato Talk
 A synopsis of what
 the HCMGA has
 available at the sale

Open to the public
 and featured
 speakers

9:00 AM Sale Gates
 Open

Harris County Master Gardeners Association

2017 TOMATO, PEPPER & HERB SALE

Saturday March 4th, 2017

9:00 AM to 1:00 PM



HARRIS COUNTY

Master Gardener
ASSOCIATION

HCMGA
 3033 Bear Creek Drive
 Houston, TX 77084

Sale Location

TEXAS A&M
AGRILIFE
 EXTENSION

8 AM Open
 to the
 Public
 &
 Speaker
 Lecture

9 AM
 Sale Gates
 Open

Harris County Master Gardeners Association

2017

Spring Perennial, Herbs & Peppers Sale

Saturday March 18th, 2017

9:00 am to 1:00 pm

HARRIS COUNTY

Master Gardener
ASSOCIATION

HCMGA Precinct 2
 Satellite
 Campbell Hall
 Pasadena Fairgrounds
 7600 Red Bluff Rd
 Pasadena, TX 77507

Sale Location

TEXAS A&M
AGRILIFE
 EXTENSION

Herb of the Month - Garlic Chives (*Allium tuberosum*)

Article by Karen McGowan, Master Gardener

Garlic Chives (*Allium tuberosum*) is our herb of the month for March.

If you are a “foodie,” this month’s herb is definitely for you. One of the most prolific growers (and spreaders!) in the garden, garlic chives (also known as Chinese leeks) provide delectable taste and beautiful color to dishes across a cultural expanse. Native to the Himalayan regions of India, Nepal, and Bhutan, garlic chives have become naturalized throughout the globe. If you think garlic chives are visually pleasing, then you are in excellent company – Van Gogh famously painted them, and butterflies and bees adore them. Within the United States, garlic chives are hardy in zones 4 through 10; however, in zones 8 through 10, they remain green year-round. Garlic chive plants grow from underground rhizomes, but also reproduce by self-sown seeds. Given the right conditions, they can become invasive.

Spring and fall are the best seasons in which to plant garlic chives. To enjoy their full, ornamental white flowers in abundance and

the plants’ upright growth, plant garlic chives in full sun. Like mint, this occasionally-invasive herb makes it an excellent, low-maintenance choice for containers. The strappy, flat leaves with a bluer tint (than the green of its cousin, onion chives) make garlic chives an attractive foil against a wide variety of planting containers. The plants grow in bunches like grasses, with a mature height of 12 to 18 inches tall. Plan on a spacing of twelve to fifteen inches between the plants for maximum plant health.

Once the plants are established, harvest the leaves by cutting off at ground level prior to flowering. But if the plant is already budding, no worries! Both the leaves and the unopened flower buds may be used in cooking. Garlic chives’ leaves can be used fresh or dried, but, as with many herbs, for most vivid color and flavor, use fresh.

Being a chef with a particular affinity for Asian cooking, garlic chives are one of my very favorite go-to herbs to enhance any number of dishes. The website Food 52 smartly recommends Chef

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Herb of the Month - *cont'd from pg. 3*

Andrea Nguyen's take on garlic chives' usage by sprinkling them on soup; however, my favorite option is to utilize garlic chives as any other vegetable in Asian cooking, by stir-frying them directly into the dish. In her cookbook, *Oriental Vegetables*, Joy Larkcom suggests using garlic chives for tempura: Tie the chives into bundles, dip them into batter (I would recommend using an egg-white batter -- Google for further information on this), and deep fry. This produces an amazingly crunchy side dish with fascinating texture and a bit of garlic-ky "bite"! In whatever way you choose to utilize garlic chives, do so quickly. Kept in the refrigerator in a plastic bag, they will last a few days, but -- again, as with many herbs -- flavor, color, and nutritional value will be at its peak upon harvesting.

Here is a great recipe from Epicurious that can easily be taken from vegetarian side dish to meat entrée by stir frying chicken, beef, or pork into the wok:

Stir-fried garlic chives with chile

Yield: Makes 4 side-dish servings

Total time: 10 minutes

Ingredients:

1 TB peanut oil

¾ lbs green garlic chives, flat parts only, cut into
1 ½ inch pieces (4 cups)

1 tsp. dried hot red pepper flakes

Rounded ¼ tsp. salt, or to taste

Preparation:

Heat wok or large skillet over high heat until a drop of water vaporizes instantly upon contact. Add oil, swirling to coat wok or skillet evenly, and heat until hot and just smoking. Add chives and red pepper flakes and stir-fry, letting chives rest on bottom and sides of wok several seconds between stirs, until chives are tender and slightly browned, 2 to 4 minutes. Stir in salt. Serve over rice. Enjoy!



Citations:

<https://bonnieplants.com/product/garlic-chives/>

<https://food52.com/blog/10537-garlic-chives-and-how-to-use-them>

<http://advicefromtheherblady.com/herbs-in-the-garden/specialty-gardens/herbs-in-your-butterfly-garden/garlic-chives/>

<http://www.epicurious.com/recipes/food/views/stir-fried-garlic-chives-with-chile-232494>

Plant of the Month - Texas kidneywood, Kidneywood, Bee brush, Vara dulce, Palo dulcet (*Eysenhardtia texana*)

Article by Beth Braun, Master Gardener

My young potted specimen didn't have much of a wow factor last summer, but its few delicate white flowers were a magnet for bees and a treat for my nostrils. So much so that I was careful to look first before leaning in for a sniff.

In their authoritative book, *Native Texas Plants*, Sally and Andy Wasowski include this small tree in their wildlife garden plan for urban areas. Their plan is designed to feed and give habitat to "small critters" like songbirds, hummingbirds, butterflies and moths, anoles, toads, dragonflies, fireflies, and bats. The kidneywood fills the niche of ornamental trees for summer nectar.

Howard Garrett calls it Bee brush and includes it in his book, *Plants for Houston and the Gulf Coast*. It earned a spot



in Evan Hopkins' native plants garden at Precinct 2's Genoa Friendship Gardens. So what does it have going for it?

Even though its natural range begins about 100 miles to the west and southwest of Harris County, kidneywood grows well here provided it has good drainage. Once established, it's drought tolerant and a good choice for xeriscaping in sunny areas. In an online gardening forum, a Houstonian reported that it thrives on neglect. So when you're asked about low-maintenance plants, you can recommend this one. Kidneywood can be clipped to encourage shrubby growth, or shaped as a small tree to accent its airy and informal form. It typically grows to 6 – 8' tall and wide, but can grow as tall as 15'.

Closely related species of the kidneywood of this article were used in remedies for kidney and bladder ailments, which explains its name. As a member of the legume family it produces small, flat pods, each with one seed. The small leaves give off a

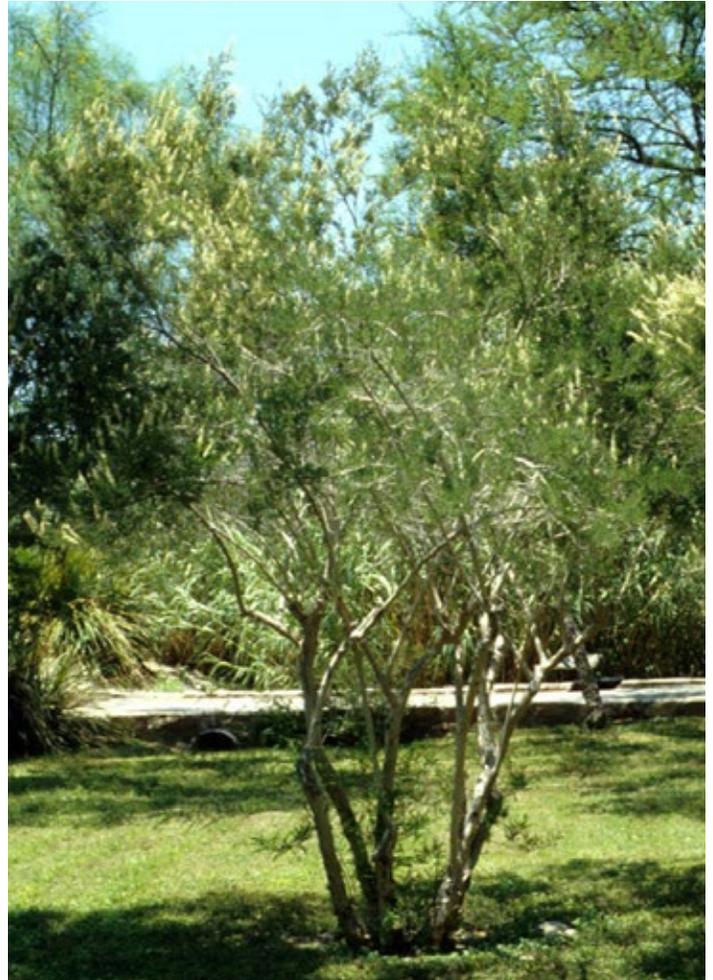


Photo courtesy of aggie-horticulture.tam.edu

pleasant citrus smell when crushed. Kidneywood is cold hardy to zone 8 and is deciduous.

By far the best reason for growing kidneywood are the vanilla-scented flowers that attract a variety of pollinators. The 3 – 4" flower spikes appear off and on spring through fall, especially after rain. Speaking of spring, my little specimen began putting out tiny green leaves just after the pomegranate a few weeks ago, turning my winter lethargy into feverish activity in the garden.

Talking About Peaches and Plums

Article by Charlotte Gogola, Master Gardener

On February 9th, P2 Master Gardeners enjoyed a talk on growing “Peaches and Plums” given by Herman Auer, a Galveston County Master Gardener specializing in plant propagation and vegetables. The presentation considered the life cycle of the peach/plum tree and mentioned specific strains that have been successful in our area.

When growing a peach/plum tree, it’s important to record all details to support future problem solving. These should include variety and rootstock, root condition, how planted and pruned, bloom date, ripe date, spraying, fertilizing, and anything else of possible future relevance. You’re encouraged to call the AgriLife extension office with any problems or concerns.

Peaches and plums have specific chilling requirements for fruiting – hours the temperature should be between 32 and 45 degrees F. The target for our area should be 300 plus or minus 100 hours. This will produce a yearly crop on mature trees.

Seed planting is discouraged. An LSU study planted 15,000 seeds and fewer than ten “had good qualities.” Trees can be ordered as whip, dry bare root or moist bare root. Moist bare roots must be kept moist until planting.

Grafted rootstocks help with resistance to pests and diseases, such as root knot nematodes. In addition, grafting trees can shorten the maturation period before fruiting, with peach trees only taking three years and plums taking two. Peaches ripen on the tree; plums ripen off the tree.

Peaches come in clingstone and freestone, based on whether the pit clings to the fruit when ripe. Peaches also have either yellow flesh or white flesh. Good yellow flesh varieties for our area include Early Amber, Earligrande, Flordaking, Midpride, Tex King, Tropic Beauty, and Tropic Sweet. White flesh options include Caviar, Truffles, and Tropic Snow.



Nectarines are basically peaches without fuzz.

This difference is significant when spraying; peach fuzz helps spray adhere, whereas for nectarines a



Herman Auer discusses shaping and pruning options for the P2 orchard.

Photo by Georgia Lau

surfactant such as Ivory liquid soap is needed to boost adherence.

Plum varieties for our area include Beauty, Mariposa, Methley, Burgundy, Santa Rosa, Gulf Rose, Gulf Blaze, Gulf Beauty, and Scarlet Beauty. Pollinizers, which are needed by certain varieties, must bloom at the same time. You can graft a pollinizer branch onto the tree for guaranteed future pollination.

The mature tree size should be considered when choosing a planting site, although chances are you will keep the tree pruned to a desired height for ease of fruit gathering. Pruning a peach/plum tree is a bit of an art, with the aim of obtaining half a dozen scaffolding limbs, each ending in two or three hanger limbs.

When planting, prune the tree down to an 18”-24” trunk (even shorter for a small yard) and remove all side twigs and growth below the graft. Mr. Auer calls this cutting \$15 off your \$25 tree. However, he says, “not pruning back the tree at planting is perhaps the greatest cause of tree failure.” For future pruning, consider that peaches and plums bloom and fruit on one-year-old wood.

The peach/pear tree will require ample sunlight and good air flow in addition to good drainage. Better drainage leads to larger trees and increased fruit yield. Depending on the planting area, a bed raised to 12”-18” may be desirable. Water deeply once a week. When planning an orchard, allow for a 14’-16’ diameter per tree. Grass allowed to grow under the tree can help stabilize the roots,

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Peaches and Plums - *cont'd from pg. 7*

although it increases the water and fertilization needs.

Once the tree starts fruiting, you'll need to thin the fruit so that the eventual harvested fruit will be large and healthy. A single fruit every 6"-8" inches is about right. As the fruit develops, it may be necessary to surround the tree with netting to keep birds and other pests away.

Preventative spraying with fungicide should be done when the pink (peach) or white (plum) bud appears, when the blossoms are in full bloom, when 80% of the petals fall. As the fruits begin to emerge ("split shuck") and every 10-12 days until harvest, a combined insecticide/fungicide product is applied. Mr. Auer recommended Rescue, which contains Sevin, Malathion and Captan.

It must be shaken well, applied when there is no wind (such as at the end of the day), and used up, not kept. Add 1-2 T of vinegar per gallon to acidify the water if needed. Read package directions to determine how close to harvest day such products can be used. Don't use Round-Up under the trees.

Fertilizing depends on the native soil. If you send a soil sample and the tree type to TAMU, they can assist in determining fertilization needs. Basic fertilization is 1 lb. 46-0-0 per inch of trunk diameter

when buds begin swelling. Divide this into 4-6 applications. Water it in. At summer pruning, apply ½ lb. per inch of trunk diameter. Stop fertilizing on July 1.

If any fruit develops fungus, it should be removed carefully so as not to spread the fungus. Plums may become infested with the plum curculio insect; malathion treats this. An infestation of peach tree borer causes holes on the bottom 18" of the trunk that contain both sap and wood chips. This infestation can be fatal; paint the trunk with a 50/50 solution of white interior latex paint to control it. Scale is controlled by smothering with dormant oil (applied in December as a preventative) or Sevin in vegetable oil.

If planting a commercial orchard, plan for 100 trees and about 17,500 pounds of fruit per acre. Rootstock will cost around \$5/tree. Yellow flesh peaches should sell for around \$2.50/lb. and white flesh for \$4.50/lb.

Mr. Auer walked us out to the orchard and discussed the shapes and locations of our P2 peach trees. Gene Gafka was there to add his knowledge of the trees, they being his "baby." I'd say we left with a thorough understanding of the needs of peach and plum trees!



Stone Fruit Talk

"If it has a seed inside, it's a stone fruit"

How to Grow Stone Fruit

Open and Free to the public

How to plant, prune, and care for the best varieties of Stone Fruit

Gulf Coast Fruit Tree Study Group

April 20, 2017 Presentation
6:30-8:00

With Noted Speaker Herman Auer



Place:
3033 Bear Creek Drive
Houston, TX 77084
<http://harris-tx.tamu.edu/hort>



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3033 BEAR CREEK DR.
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281.855.5600 FAX 281.855.5638

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Like Us On Facebook

The Harris County Master Gardeners as well as Texas A&M Agrilife Extension - Harris County Horticulture are actively participating on Facebook offering tips, lists, news and plant advice almost daily. The best part, instead of locating planting guides or insect documents, and sale dates for individuals, you can add the HCMG site



your account and easily share information with others. This is a definite timesaving device for these busy garden days and helps promote our organization.

www.facebook.com/HarrisCountyMasterGardeners

www.facebook.com/HarrisCountyHorticulture

URBAN DIRT • MARCH 2017



March Green Thumb Gardening Series, *Roses: Planting, Growing & Upkeep*

March 9

Barbara Bush Library
6:30-8:30 p.m.

March 18

Maude Smith Marks Library
10 a.m. - Noon

March 16

Freeman Branch Library
6:30-8:30 p.m.

March 21

Spring Branch Memorial Library
6:30-8:30 p.m.