

What's Growing On?

BASTROP COUNTY MASTER GARDENER ASSOCIATION

April 2020

Oak Wilt:

Are your trees in danger?

By Carolyn Turman

In the last edition, I emphasized that the first thing we should do when we think one of our plants is sick is to identify the plant. If we don't get that right, then any future diagnosis and treatment may be incorrect as well. For instance, if a tree has brown or yellow or red leaves in the fall, it is most likely a deciduous tree (one that loses its leaves during the winter). If it is a live oak, then they stay green through the winter but lose leaves and grow fresh leaves in the spring. Many concerns can be alleviated by knowing your trees and understanding their growth habits. For identification and other information on specific trees, please see <http://texastreeid.tamu.edu/content/listOfTrees/>.

This article will be limited to Oak trees, as these are susceptible to Oak Wilt. There are two groups of Oak trees: Red Oaks and White Oaks.

We will start with the **Red Oaks**. These trees are fairly easy to identify, because the leaves turn a beautiful red in the fall and drop for the winter (deciduous) with fresh growth in the spring. Two examples are the Texas Red Oak and the Shumard Oak.

Two other trees in this group are the BlackJack Oak and the Water Oak. The BlackJack Oak leaves are very large, have 3 lobes, and turn red in the fall. Water



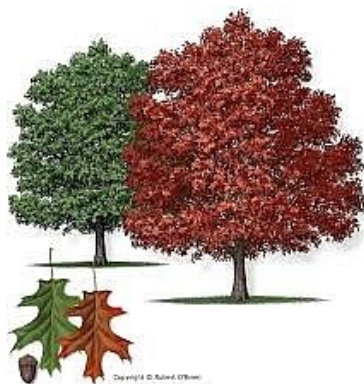
Blackjack Oak
(Quercus marilandica)

Water Oak
(Quercus nigra)

Oak leaves have been likened to a “turkey foot”. In the Bastrop area they may not turn red in the fall or drop their leaves because of the mild climate.

Red Oaks are the **MOST** susceptible to Oak Wilt Fungus because they have large summerwood pores (new growth formed in mid-season). They die very quickly, within weeks, from the time they are first infected. Their death may be delayed by winter but they will die. Trees killed in late summer may produce mats the following spring. These mats contain spores which are spread by sap feeding beetles (Nitidulid Beetle).

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Texas Red Oak
(Quercus buckleyi)

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The Pot Problem

by Howard Nemerov

What's in a name? Plenty, if you're concerned about keeping plants alive during our summers.

“One-gallon pot.” “Five-gallon pot.” These names exist on price sheets published by reputable growers. The pot's capacity is one or five gallons, right? It's time to reveal the truth about pot size, because when it comes to surviving our summers, capacity matters.

In the picture below, on the left is what's often called a standard “1-gallon” pot. On the right is a gallon of vinegar. Visual inspection shows the vinegar bottle appears nearly twice the capacity.



The pot is a Classic 300-S from Nursery Supplies, Inc.¹ Its capacity is 0.63 gallons (about 2½ quarts), and it is indeed the classic size that nurseries sell as “1 Gallon plants.” For example, Native Texas Nursery sells “1 Gallon” perennials in pots like these.²

One problem is that plants become root-bound faster than if grown in a true 1-gallon container. The other problem is water consumption. The

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(Picture by Howard Nemerov)

Monarch on Tithonia Rotundifolia

by Howard Nemerov

Tithonia rotundifolia (Mexican Sunflower), is one of the few non-native nectar plants I still grow, and this picture shows why.

Monarchs and native butterflies love this plant. If it's Monarch-approved, it's okay by me.

It is moderately heat and drought tolerant, making it suitable for Central Texas. Seeds germinate easily, making this a good flower for beginners. Give it some room, as it can grow into a 4'-by-4' bush (or taller). If you're not saving seed, dead-head spent flowers to promote more blooms. If you *are* seed saving, grow at least 8 plants, keep the first bloom for seed production, and cut off succeeding blooms to focus energy on the first bloom's seed production while also promoting more blooms.

If you find caterpillars chewing on the leaves, it's a native butterfly, likely one of these: Gorgone Checkerspot, Silvery Checkerspot, or Bordered Patch. They tend to not eat the plant back to a weakened state, and remember that you're inviting these butterflies to make your yard home when you offer them both nectar and nursery. This makes it more likely they'll hang around for more dances around your garden.

You CAN garden for your own and Nature's pleasure all at once.

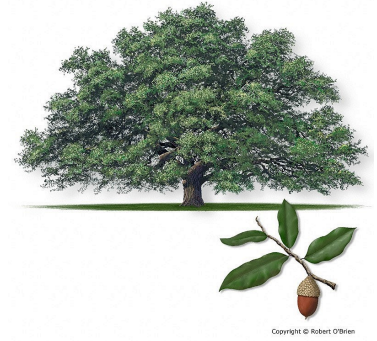
These beetles are attracted to the oak wilt fungus mats because they give off a sweet “fruity” smell. Oak wilt can spread even through the cut wood from a diseased Red Oak tree. Because these trees are not root sprouting (producing suckers), the beetle spreads the fungus to open wounds in living oaks. Disease can also be spread through red oak firewood

The **White Oaks** can be broken down based on their vascular and root systems. Live oaks such as Southern Live Oak are root sprouting and spread by root grafts. Other white oaks—Post Oak, Lacey Oak, and Monterrey Oak—are not root sprouting.

If you have Post Oak, Monterrey Oak, or Lacey Oak, your trees may die from other issues but it is most likely not Oak Wilt, because these trees are not root sprouting and their vascular systems have small pores.



Lacey Oak
(*Quercus laceyi*)



Live Oak
(*Quercus virginiana*)

Live Oak is susceptible to Oak Wilt but takes longer to die. The impact to the Live Oak trees in Texas is huge because of their root sprouting and grafting properties. If one tree is infected, the disease will travel to oak trees around them. Their roots can also graft to red oaks. Less than 20% of infected live oak trees survive and the treatments can be very costly.

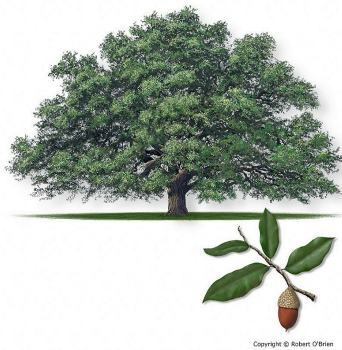
Oak Wilt Control Options:

- Plant resistant/immune varieties
- Avoid pruning/wounding oak trees in the spring
- Always use wound paints immediately
- Be mindful of dangers from firewood
- Kill pathogens by covering firewood during summer months as heat suppresses growth.

The next article will focus on detection and possible treatments of Oak Wilt.



Post Oak
(*Quercus stellata*)



Monterrey Oak
(*Quercus polymorpha*)

Resources: Master Gardener Advanced Training, Texas First Detectors, Central Texas, May 20-21, 2019 hosted by Williamson County Master Gardener Association.

Trainers: Dr. Kevin Ong, Sheila McBride, M.Sc, Dr. David Appel, Mr Ergan Vafaie, Masters in Pest Management, V. Hannah Ayala, Extension Assistant at Texas Plant Disease Diagnostic Laboratory.

New Website Features

Check out our website, which features project slideshows, a new photo gallery section, and an events calendar to check out upcoming activities. Find news articles and our newsletters. Thanks to Dave Posh for keeping the info timely for us <https://txmg.org/bastropcounty/>

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average high in August is in the upper 90s, and rain is scarce. Rootballs dry out faster in this weather. The capacity ratio to a true, 1-gallon pot is 1:1.6. This means that every two times your real 1-gallon pot needs watering, you'll need to water the Classic 300-S three times. Another way to look at it: If you're spending \$100/day watering a growing range of Classic 300-S "1 Gallon" pots, it would cost you \$63/day if you had true 1-gallon pots.

Another way to look at it: You're growing out plants for our fall sale in Classic 300-S pots. You're delayed getting home on a hot day. By the time you get home, the root balls have dried out, the plants are in shock or dying: They will not be presentable for the plant sale. If these plants were in 1-gallon pots, you would have had a 37% larger reservoir for your plants to draw on, and they would have survived.

Another way to look at it: You bought "1 gallon" of milk at the grocery store. When you got home, you found the container held 2½ quarts. Wouldn't you want to return it?

Truth in Advertising

Here's an example where the manufacturer (Growneer) advertises its "1 Gallon Nursery Pot."³ You can calculate a pot's capacity yourself, if you know the diameter and height, even when the manufacturer doesn't specify capacity. Pots generally narrow towards the bottom, in order to make root-ball removal easier. This pot's diameter is 16cm at the top and 12.5cm at the bottom. Assuming a consistent slope from top to bottom, the average diameter is 14.25cm. The height is 17.5cm. Capacity is calculated as Pi times the radius squared, times the height ($3.1416 * 7.125^2 * 17.5$). This gives you a capacity of 2,791 cubic centimeters. One cubic centimeter equals 0.000264 U.S. gallons, making the final capacity 0.735 gallons.⁴ If you use only the first decimal for rounding, you get "approximately 1 gallon" (0.7 is greater than 0.5, so round up to nearest integer, 1 in this case.)

If you thought you were buying a 1-gallon pot, this one was about 36% short (0.735-gallon capacity times 1 plus 0.36 = 1-gallon capacity.)

Honest manufacturers like McConkey call these "#1 pots."⁵ They claim, "Individual Pots have a volume of 2.9 qt/2.8 L" (0.725-gallon capacity).

And so it goes with larger pots. Nursery Supplies sells a C600 pot that they say is called "#2" in the trade. Its capacity is 1.5 gallons.⁶ Their C1200 pot is called #3 in the nursery trade, and has a capacity of 3 gallons, one of the few that matches number with capacity. Their trade size #5 pot (C2000) has a 3.58-gallon capacity.

Octoraro Native Plant Nursery lists their containers using the "#N" system because: "Pennsylvania state regulations require us to use the word "container" to describe our pots vs. the traditional use of "gallon" *as this term is not a true measure of volume.*" [emphasis added] While their "#3 container" has a 3-gallon capacity, their "#5 container" has a 3.843-gallon capacity.⁷

To the right is ProCal's Pro Can #5 nursery container, next to a true 5-gallon bucket. Notice how the #5 container is shorter and has a smaller diameter.

Placing the #5 container inside the 5-gallon bucket shows how it's smaller than 5-gallon capacity.



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This is why I call a “1-gallon” pot a #1 pot, and believe the nursery industry should standardize on honest measurements. As with a gallon of milk, “1 gallon” means a specific unit of measurement.

When we’re selling to customers at our plant sales, they deserve to know how big the root ball is, so they can make appropriate plans for their purchase. We do this when advising them on landscape placement, by telling them a plant’s mature size. Likewise, they deserve to know how long a plant can live in a container, and how often they need to water to keep it alive before installation³



Endnotes

¹“Blow Molded – Classic Line.” C300S. Nursery Supplies, Inc. Accessed April 3, 2020. <http://www.nurserysupplies.com/traditional-nursery-products/blow-molded-nursery-containers/blow-molded-classic-line>

²“Order Form.” Native Texas Nursery. Accessed April 3, 2020. https://nativetx.com/media/storage/images/Avail_03_30_20.pdf

³“GROWNEER 6-Pack 1 Gallon Nursery Pot Garden Flower Pots, Nursery Plant Container Kit with 6 Pcs Matching Pallets and 15 Pcs Plant Labels, Black.” Amazon.com. Accessed February 21, 2020. https://www.amazon.com/GROWNEER-Nursery-Container-Matching-Pallets/dp/B07PQGVCT9/ref=sr_1_5?qid=1582312681&refinements=p_n_feature_twenty_browse-bin%3A2972982011&s=lawn-garden&sr=1-5

⁴“How to Calculate the Capacity of a Cylinder.” Sciencing. Accessed April 3, 2020. <https://sciencing.com/calculate-capacity-cylinder-4868412.html>

⁵“McConkey Trade #1 Injection Molded Pot, Case of 120.” Amazon.com. Accessed February 21, 2020. https://www.amazon.com/McConkey-Trade-Injection-Molded-Case/dp/B07198H7N5/ref=pd_sbs_86_8?_encoding=UTF8&pd_rd_i=B07198H7N5&pd_rd_r=8718d2b1-72c0-47ae-aba9-3da8eb5b5eb4&pd_rd_w=UEl5V&pd_rd_wg=ZhgK8&pf_rd_p=7cd8f929-4345-4bf2-a554-7d7588b3dd5f&pf_rd_r=J4SRS2HWQGXE3VHN70KN&refRID=J4SRS2HWQGXE3VHN70KN&th=1

⁶“Blow Molded – Classic Line.” Nursery Supplies, Inc. Accessed April 4, 2020. <http://www.nurserysupplies.com/traditional-nursery-products/blow-molded-nursery-containers/blow-molded-classic-line>

⁷“Container Sizes.” Octoraro Nursery. Accessed April 4, 2020. <https://www.octoraro.com/faqs/container-sizes/>

Weekly Garden Webinars: Master Gardener Continuing Education

Horticulturist David Rodriguez and Entomologist Molly Keck are joining forces to provide a weekly plants and bugs webinar series. Join us to learn about your landscape and the insects that could wreak havoc on it! Every Tuesday and Wednesday in April, 1–2 p.m. Central Time. To join, click on this link: <https://agrilife-tamu.webex.com/agrilife-tamu/j.php?MTID=m9251097900a15d7d57a12b6672213fc7>

What’s Happening in Your Veggie Garden

April 21 – The Plants – David Rodriguez

April 22 - The Pests – Molly Keck

Growing Citrus on Your Patio and Landscape

April 28 – An Easy and Fun Way to Grow Vitamin C – David Rodriguez

April 29 – The Pests that Reduce That Vitamin C – Molly Keck

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EXTENSION

Viguiera dentata: Shade tolerant perennial and pollinator plant

By Howard Nemerov



I've been growing *Viguiera dentata* for three years now, the original plants coming from Lady Bird Johnson Wildflower Center's plant sale. It's often called Sunflower Goldeneye or Toothleaf Goldeneye, the former probably because it shares the Aster Family with sunflowers, the latter because of dentate leaf margins.

The USDA reports that *Viguiera dentata* is native to Travis and Fayette counties.¹ It grows well in my front walkway and smaller xeriscape, around Pecan canopy dripline. Lady Bird concurs that it prefers part shade, adding that it's "extremely drought-tolerant."² Since I don't like spending

water on the front landscape, these two attributes make *Viguiera dentata* a compelling candidate for the pollinator landscape.

Speaking of pollinators, Lady Bird also reports that *Viguiera dentata* is a larval host plant for two Texas native butterflies: Cassius Blue (*Leptotes cassius*)³ and Bordered Patch (*Chlosyne lacinia*).⁴ The latter is a frequent visitor to my garden.

Viguiera dentata blooms in the fall, though it may produce a brief flush in the spring, usually in April. It flowers reliably from late September into early December. Its small, daisy-like flowers attract smaller pollinators, including native bees and butterflies.

In order to help naturalize it for Bastrop County, I've been growing it as an annual, saving seed and replanting each spring. Selecting the strongest, most productive plants encourages slight genetic drift to create a strain more suitable here, considering it's mostly native to drier Central Texas counties west of us.

Removing last year's plants showed a massive, deep root system. I originally planned to pot them up for our spring sale, trying to ease a root ball out with a garden fork. After having to tear them out due to their vigorous, deep roots, it became doubtful they would survive. This is not a perennial that lends itself to moving or dividing once established. This is good in that it shows why *Viguiera dentata* is drought tolerant once established.

Seed germinates moderately well under varying conditions. Initial testing shows about a 45% germination rate using three common germination methods: cold, moist stratification; storing in the refrigerator and then starting indoors under lights; planting a flat outside in February for seeds to experience more natural conditions of nighttime temperatures falling into the 40s and daytime temperatures

warming to the 60s or 70s. The last method may be easier, though once seeds begin emerging, I placed them under lights indoors to produce healthy starts sooner. All three methods produced similar germination rates.



This year, *Viguiera dentata* is showing signs of naturalizing: Volunteers sprouted in beds where I planted it last year. The first picture shows volunteers in the front walkway; the second is the xeri-



scape.

Viguiera dentata is a plant we should consider moving into production for our plant sales. Its reliability, pollinator attraction, and drought and shade tolerance make it suitable for low-maintenance home landscaping.

Endnotes

¹“*Viguiera dentata*.” USDA Plants Database. Accessed April 13, 2020. <https://plants.sc.egov.usda.gov/core/profile?symbol=VIDE3>

²“*Viguiera dentata*.” Plant Database, Lady Bird Johnson Wildflower Center. Accessed April 13, 2020. https://www.wildflower.org/plants/result.php?id_plant=vide3

³“*Leptotes cassius*.” Butterflies and Moths of North America. <https://www.butterfliesandmoths.org/species/Leptotes-cassius>

⁴“*Chlosyne lacinia*.” Butterflies and Moths of North America. <https://www.butterfliesandmoths.org/species/Chlosyne-lacinia>