

What's Growing On?

BASTROP COUNTY MASTER GARDENER ASSOCIATION

June 2020

Can My Oaks Be Saved? Detection and Treatments

By Carolyn Turman

This is my third and final article on oak wilt, a reminder of how this disease impacts Texas and how each of you can help to prevent the spread. Thousands of acres of live oaks have become victims of oak wilt in rural areas of Central Texas, as well as suburban and urban areas. These losses impact our wildlife and allow for encroachment by less desirable trees. Urban homeowners may be impacted economically because of possible reduction in resale value.

If you have both red oaks and live oaks in the same area, early detection and prevention measures could help you save some of them!

For further information, please refer to prior articles about Oak Wilt in our February and April newsletters. Both are available on our website <https://txmg.org/bastropcounty/>.

First, correct tree identification is critical as most white oaks are not as susceptible to oak wilt. If white oaks have issues, it is most likely something else. The exception to this is Live Oaks because they are root sprouting. See <http://texastreeid.tamu.edu/content/listOfTrees> for help with tree identification.

Prevention includes avoiding pruning or wounding oaks in the spring and painting any cuts or wounds immediately. Unfortunately, as you will see in this article, oak wilt is deadly so strive for prevention and early detec-

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UPDATE! Bastrop County Master Gardener 2020 Class has been postponed

Due to coronavirus (COVID-19) and the challenges it poses to Bastrop County, we have decided to postpone the start of the 2020 Master Gardener class till a later date, perhaps as early as February 2021. Once we have a revised plan, we will let you know.

Who are the Bastrop County Master Gardeners?

We are an all-volunteer organization working under the direction of Texas A&M AgriLife Extension. Master Gardeners love gardening and want to share their knowledge with others and promote the love of gardening. What really sets Master Gardeners apart from other home gardeners is their special training in horticulture, and their commitment to sharing their knowledge by working through Texas A&M

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tion. This article is focused on detection and treatments of the susceptible trees but there is very little that can be done. Treatments are very costly and only result in a 15-20% success rate, so I will repeat the prevention tactics often within this article.

Red Oaks are the most susceptible to oak wilt. There is 0% survival. They die quickly although some can survive through the winter, and the pathogen can live on even after the tree is dead. They have fungal mats that attract sap feeding beetles called Nitidulid Beetles, which can spread the disease to other red oaks and live oaks.

Red Oak symptoms include dropping leaves and fungal mats. Since they also drop their leaves in the fall, take samples to confirm the presence of the pathogen and send to the Texas Plant Disease Diagnostic Lab for confirmation. See instructions at <https://plantclinic.tamu.edu/services/>.

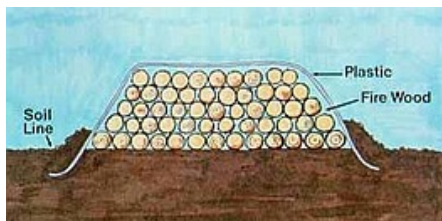


There are no treatments for oak wilt on Red Oaks. The presence of the pathogen lives on even after the tree's death. Trees killed in late summer may produce mats the following spring. The Nitidulid Beetles are attracted to sweet smelling odors, ripe fruit and fresh wounds on trees. **Peak beetle population is in the spring so avoid pruning/wounding oak trees in the spring and remember to paint all wounds.**



is in the spring so avoid pruning/wounding oak trees in the spring and remember to paint all wounds.

In order to stop the spread of the pathogen, cut down any infected red oak trees as soon as possible and cover infected red oak logs with clear plastic. Leave covered for the summer be-



AgriLife Extension to provide horticulture-related information to the community.

The Texas Master Gardener training program is designed to prepare members to volunteer in the community. We offer a minimum of 50 hours of instruction taught by Texas AgriLife Extension specialists and other experts.

Topics Include:

- ❖ Horticulture & Plant Growth
- ❖ Insects & Pest Management
- ❖ Plant Identification
- ❖ Diagnosing & Managing Plant Problems
- ❖ Lawn Care Maintenance & Disease
- ❖ Plant Propagation
- ❖ Water Conservation
- ❖ Herbs & Vegetables
- ❖ Tree Care & Pruning Principles
- ❖ Composting/Organic Horticulture
- ❖ Home Fruit & Nut Production

Volunteering

Master Gardeners volunteer in the community to teach others about horticulture. We follow the research-based recommendations of Texas A&M AgriLife Extension. Members who complete 50 hours of volunteer service in the year after training earn the designation "Texas Master Gardener." We use our title only when engaged in Texas A&M AgriLife Extension activities.

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cause the pathogen dies at temperatures exceeding 96.8°F.

Diseased **Live Oaks** have a 15-20% chance of survival. Live Oak symptoms are apparent in the leaves of the tree. The top of the tree begins to have a yellow dying appearance. The leaves look like those in the pictures below. Once this occurs, the treatments include trenching (at least 4 feet deep) to separate any healthy trees from connecting to the diseased trees, roguing (removal of diseased trees within the trenched area), and fungicide treatments.



The pictures below show a machine trenching around some oak trees. This process is very costly and hard on equipment.



An alternative to trenching is to treat individual trees with fungicide injections. These can be therapeutic as well as preventative. There are

Resources: Pictures and quotes from slide show by: Dr. David Appel, Dept. of Plant Pathology and Microbiology, Texas A&M University, College Station, TX

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

multiple products and techniques for fungicide injections. One process begins by exposing the tree root flares because bark is thinner below the soil line. This also increases the number potential injection sites. In case of future injections, this process spreads out the wounding. Research demonstrated superior distribution of fungicide. Below are some examples of fungicide treatments.



Based on this information, the best thing we can all do is try to prevent the spreading of this pathogen by **removing infected Red Oaks as soon as possible and cautious movement of the infected wood, avoid wounding oaks in the spring and use wound paints! Finally, plant resistant/immune trees, especially if you are replacing a diseased tree.**

Please check out the websites listed in this article for more information. Also, watch for training in your area.

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/>

Verbesina encelioides: All-Around Performer

By Howard Nemerov



I began growing *Verbesina encelioides* (Cowpen Daisy or Crownbeard) in 2018, to see how this Bastrop County native would perform in my garden.¹ From a few trial plants, this low-maintenance annual now occupies space as companion plants in my vegetable beds (left), attracting a broad range of pollinators.

I was initially hesitant to plant *Verbesina encelioides*, thinking annuals were extra hassle, with so many native perennials to trial and limited space. Its fast growth and early maturity—as little as

one month from start pot to first flower—answered some concerns. The first year, the flowers attracted Syrphid Flies, whose larvae eat aphids, small caterpillars, and thrips.² Concerns addressed.

Germination Rates

Three seasons later, I'm getting a better idea of how to germinate *Verbesina encelioides* seed. Natives, even annuals, have adapted to waiting out cool winters, then germinating when the threat of killing frost ends for the season. (One early grow-out experienced frost damage this year, when I pushed the starting date to see how they performed; they bushed out from axillary buds and formed large bushes.)

Cold, moist stratification yielded the best results, with over a 90% germination rate. I also mimicked late winter weather by placing starting flats outside on our covered deck on January 12. Seeds began sprouting 4 days later, with a germination rate of 54%. This process is 40–70 germination, where nighttime temperatures fall to 40°F or lower, yet Texas winter highs often reach into 60–70° F or higher.³ Many native seeds break dormancy this way, because this temperature fluctuation signals coming spring.

You'll save plenty of seed without difficulty: *Verbesina encelioides* throws *a lot* of seed in its determination to colonize. The 40–70 method is simpler and easier than stratification, but it's good to hone your stratification skills for when you buy fussier—and more expensive—seeds like native milkweeds and other perennials.

If you buy *Verbesina encelioides* seed to get started, it's likely a one-time purchase.

Accessions

There's evidence that climate influences plants to produce locally-adapted phenotypes.⁴

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“Phenotype refers to the observable characteristics of an organism as a multifactorial consequence of genetic traits and environmental influences.”⁵

This is an important benefit for seed savers, as plants interact with their microclimate to improve chances of survival. (Remember that seed production is all about reproducing for survival of the species.) This is why seed saving with your favorite flowers and vegetables is highly desirable.

This year’s plants are my second accession, or generation grown from saved seed. An accession is: “A distinct, uniquely identified sample of seeds or plants, that is maintained as part of a germplasm collection.”⁶ In my case, the “distinct, uniquely identified sample” notes the year and collection month; I keep genealogical records in an Excel workbook to further identify each unique sample, and the year its parent plants grew. My first accession in 2019 was grown from the original seed source, Native American Seed in 2018, making 2019 the first year I saved my own *Verbesina encelioides* seed. Seeds saved from accession 1 in 2019 provided seed for this year’s crop.

Bastrop Hardy

Not only is *Verbesina encelioides* tolerant of late-season frost, it’s heat and drought tolerant, too. Last year, with minimal care *Verbesina encelioides* flowered from early March through early December, taking a brief break only in early August, our hottest time of the year. To keep pollinator pollinators in your yard all year, they need nectar sources through the summer. *Verbesina encelioides* is one of the most reliable flower producers from late winter into late fall.



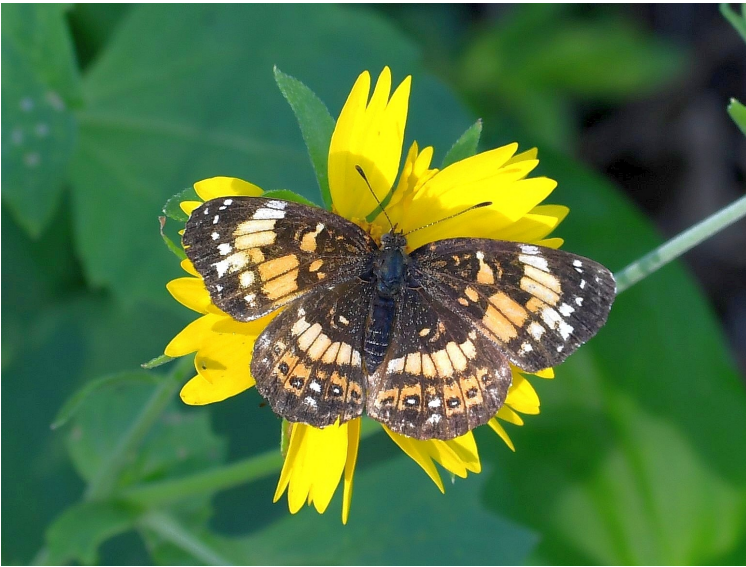
Stop and Enjoy the Pollinators

Lady Bird Johnson Wildflower Center notes that *Verbesina encelioides* offers “special value” to bees, both native and European, and that it also attracts butterflies.⁷ It’s all true in my garden. Below are Fiery Skipper and Common Buckeye butterflies sipping nectar from a *Verbesina encelioides* flower. This is just a sample that included many other Bastrop native butterflies visiting my *Verbesina encelioides* flowers.

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To maximize pollinator visits, it's good to deadhead regularly. While *Verbesina encelioides* continues to bloom in any case, if you're not saving seed from a flower, it still helps to help the plant redirect energy to new shoots, leaves, and flowers to keep it in optimal production.

Verbesina encelioides does indeed invite a host of pollinators, sometimes all on the same flower cluster. To the right is Painted Lady butterfly sharing with a European honeybee and pollen-eating Scarab beetle, all ensuring the next generation of viable seed.



Verbesina encelioides is also a host plant for two local butterflies: Silvery Checkerspot (left),⁸ and Bordered Patch.⁹

Verbesina encelioides:

- ◆ Attracts beneficial insects for pest control.
- ◆ Offers pollinators nectar almost 10 months out of the year.
- ◆ Hosts native butterfly larvae.
- ◆ Grows well with little maintenance other than deadheading.

Verbesina encelioides is a Bastrop-hardy annual that pays big dividends for little investment.

(Photos by Howard Nemerov)

Endnotes

¹ “*Verbesina encelioides*.” USDA Plants Database. Accessed June 3, 2020. <https://plants.sc.egov.usda.gov/core/profile?symbol=VEEN>

² “Syrphid Fly.” Field Guide to Common Texas Insects, Texas A&M AgriLife Extension. Accessed June 3, 2020. <https://texasinsects.tamu.edu/syrphid-fly/>

³ Norman C. Deno. “Chapter 6. Inhibitor Destruction by Moist Conditions.” *Seed Germination Theory and Practice*, Page 24. <https://naldc.nal.usda.gov/download/41278/PDF>

⁴ Shao-bo Gao et al. “Phenotypic plasticity vs. local adaptation in quantitative traits differences of *Stipa grandis* in semi-arid steppe, China.” *Nature*, February 16, 2018. Accessed June 6, 2020. <https://www.nature.com/articles/s41598-018-21557-w>

⁵ “Phenotype.” *Biology Online Dictionary*. Accessed June 6, 2020. <https://www.biologyonline.com/dictionary/phenotype>

⁶ “Glossary.” The U.S. National Plant Germplasm System. Accessed June 3, 2020. <https://www.nap.edu/read/1583/chapter/8>

⁷ “*Verbesina encelioides*.” *Plant Database*. Lady Bird Johnson Wildflower Center. Accessed June 9, 2020. https://www.wildflower.org/plants/result.php?id_plant=VEEN

⁸ Znobia Wootan. “Cowpen daisy, a dependable fall bloomer.” *Native Plant Society of Texas*, December 4, 2012. Accessed June 6, 2020. <https://npsot.org/wp/story/2012/3082/>

⁹ Monika Maeckle. “Bordered Patch caterpillars, Cowpen Daisies, and 362 San Antonio pollinator habitats.” *Texas Butterfly Ranch*, May 2, 2019. Accessed June 6, 2020. <https://texasbutterflyranch.com/2019/05/02/bordered-patch-caterpillars-cowpen-daisies-and-362-san-antonio-pollinator-habitats/>