

# Henderson County Master Gardeners (HCMG)



## Inside Dirt

### President's Message

**Yvonne Sparks, Master Gardener & President**



As we approach the holiday season and the final months of my tenure as President, I reflect on the many wonderful things that have happened during my term. First on my list was the opportunity to represent our great organization at a variety of events in the community. I have met many wonderful gardeners who share my interest of horticulture. It is really fun to talk about MG and of course getting the interesting questions like, "what are earthworm castings?" and always popular, "what is this plant?" Another good one is "my \_\_\_\_ isn't blooming, what is wrong?" Most of my responses are, "let me look into that and I will get back with you!"

Another great thing about being President has been getting to know our new Ag Agent. HCMGA is very lucky to have Spencer Perkins. He has worked very hard to learn names and be proactive in identifying needs of our community. On October 12 I had the privilege to teach the current Master Gardener intern class. This is the fourth time I have taught a Master Gardener class. The topic was Earth-Kind Landscaping. The fifteen students, ranging in age from 12 to 70+, are one of the most enthusiastic group of people I have been around. The quality of their questions impressed me and leads me to believe there are some potential very good Master Gardeners in this class.

On October 16 the HARVEST Garden had its ground breaking at the Henderson County Fair Park facility. The ceremony was attended by many county and Fair Park officials (see more on page 5). It makes me proud to have been a part of this new project.

So, without further ado, I say "thanks" to all the Henderson County Master Gardeners that have made being President so rewarding. See all of you soon and Happy Holidays!



### Inside this issue

- President's Message .....1
- Calendar of Events.....2
- HCMG Offers Gardening Guide.....3
- Recap of our Fall Conference .....4
- HCMG Projects.....7
- Harvest Garden Groundbreaking.....7
- Japanese Maples.....9
- Monthly Gardening Tips.....12
- Brown Patch in Turfgrass.....13
- Can You Grow It In YOUR Garden?.14
- Grown by Robots with Love.....17
- Spencer's Talk.....20
- Library Series.....23
- About HCMG.....23

## *Gardening Guide Offered to Public*

**Paula Winter, Master Gardener**

Henderson County Master Gardener Association (HCMGA) is pleased to offer a month-by-month gardening guide to the public for only \$15. This guide is specific to East Texas and is available now. The guide lists vegetable planting dates and gardening chores for flowers; shrubs and trees; and lawn and ground cover each month



Specific tips and tricks relating to the chores listed are included. For example, pruning information for roses, hydrangeas, and clematis is given.. Additionally, the four different types of hydrangeas commonly grown in East Texas are listed, along with the correct pruning method and timing for each type. A breakdown of clematis types and the proper pruning of each one is also included.

Twelve different articles on subjects pertaining to gardening in East Texas has been added throughout the book. Soils; watering; butterfly and bee gardens; Texas Superstar® plants; bulbs; wildflowers; herbs; and several other topics are explained in detail.

This book should become a treasure to every gardener in East Texas for two reasons. First, this guide can be used year after year, unlike a calendar which loses its usefulness. Secondly, the guide has additional pages each month for notes. This allows each gardener to personalize it to their own specific garden.

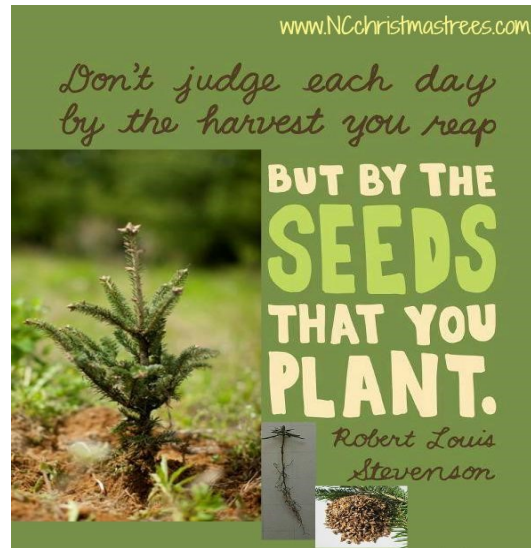
Covered with plastic, this spiral-bound book is approximately 5.5 x 8.5 inches, just the perfect size to pop into your tote or wagon and take out in the garden with you. You may want to purchase several for friends and family, and some for Christmas gifts.

This gardening guide was the project chosen by the 2018 HCGMA intern class. Interns have taken the Master Gardener class and are working on their volunteer hours to obtain certification. Proceeds from the sale of this book will go toward funding horticultural educational projects and programs designed to meet the needs of Henderson County gardeners. HCMGA is a 501(c)(3) non-profit organization.

The guides will be available for pick up at the Henderson County Extension Office, 3rd floor, Courthouse, Athens.

For more information, call 903-675-6130, email [hendersonCMGA@gmail.com](mailto:hendersonCMGA@gmail.com), or visit [txmg.org/hendersonmg](http://txmg.org/hendersonmg).





### Calendar of Events

- 11/4 - Daylight savings time ends
- 11/7 - HCMG monthly meeting (note date change)
- 11/11 - Veterans Day at the Wall (East Texas Arboretum)
- 11/15 - Average first freeze
- 11/21 - Last day of Dallas Arboretum's Fall Festival
- 11/22 - Thanksgiving Day
- 12/1 - Christmas workshop for kids (East Texas Arboretum)
- 12/5-7 - Composter (Master Gardener advanced training) Rosenberg, TX
- 12/8 - Christmas on the Square and Parade (East Texas Arboretum)
- 12/13 - HCMG Holiday Party (monthly meeting)
- 12/18 - Learn at the Library Series (see page 20)
- 12/25 - Christmas Day
- 12/31 - Last day of Dallas Arboretum's 12 Days of Christmas
- 4/27/2019 - HCMG Plant Sale
- 4/25-27/2019 - Texas Master Gardener Association Conference in Victoria, TX
- 10/(TBD)/2019 - HCMG Fall Conference
- 5/12-14/2020 - Texas Master Gardener Association Conference in Waco, TX

Events in **bold** are open to the public

Henderson County Master Gardeners monthly meetings (noon) are held at: Richard M. Hart and Johnny Morris Conservation Center 5601 County Road 4812 Athens, TX

# Recap of our Fall Conference

Elizabeth Murphy, Master Gardener & Conference Co-Chair

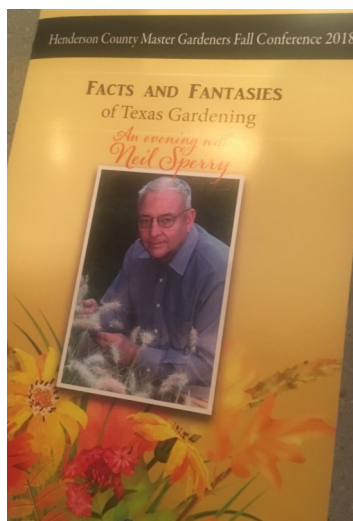
Claudia Durham, Master Gardener & Conference Co-Chair

Members of the Henderson County Master Gardener Association were proud to host Neil Sperry as the speaker for the 2018 Fall Conference. "Facts and Fantasies of Texas Gardening," An evening with Neil Sperry, which was held October 4th at Athens County Club.

It was a fun event for those who attended. There was an opportunity in the beginning to browse close to 75 silent auction items, donated by friends and businesses in our community. We had a delicious dinner served by the staff of Athens County Club and then Mr. Sperry made his interesting and often humorous presentation.

The attendance was outstanding with approximately 250 people from across Henderson, Smith, Kaufman, Van Zandt and Cherokee Counties joining us. Mr. Sperry sold and signed his beautiful new book. The 2018 HCMGA Intern Class sold their "Monthly Gardening Guide" (see page 3 for more information). David Bickerstaff served as emcee for the evening with comments from Yvonne Sparks, HCMGA President and Spencer Perkins, Henderson County Extension Agent. The tables were decorated with dried natural arrangements using donated bird feeders.

Neil Sperry is a well-known horticulturist and radio personality. He grew up in College Station and graduated with both his Bachelor of Science and Master's degrees in horticulture from Ohio State University. He has been on the radio helping people for more than 30 years and has authored two books, Complete Guide to Texas Gardening and his most current book, Lone Star Gardening. It was an honor and a privilege to have he and his wife, Lynn, spend time visiting with us.



Thanks to our Sponsors!

## Recap of our Fall Conference (cont.)

The conference was a great success. Surveys turned in rated the evening outstanding, indicating the majority would use what they learned and attend again. This conference was made possible through the help of a great team of members. Committee Chairs were: David Bickerstaff, Sara Drummond, Jacob Cole, Judy Haldeman, John Maloch, Peg Martinez, Martha Rainwater, Lynn Stroud, Lora Tomlinson and Paula Winter. Special thanks to ML Haldeman. We are also very grateful to the master gardeners who helped us with the decorations, hospitality and the silent auction before and during the event. There were a lot of hours contributed.

We are especially grateful to the fantastic sponsors for the event. Thanks to their generous support, we were able to exceed our goal of raising money to support the important activities of our wonderful organization. We appreciate the community backing the Henderson County Master Gardeners. Thanks to everyone! We hope to see you next year!



## Recap of our Fall Conference (cont.)

### A few comments from our guests:

*"I'm so impressed with the HCMG and the enormous work they are doing to educate."*

*"Loved the dinner and the venue being at Athens Country Club."*

*"Very informative in a fun way! I learned a lot!"*

*"First time to attend. Had a wonderful time."*

*"Very enjoyable listening to and learning from Neil Sperry. Quite the entertainer!"*

*"Service by the Athens CC staff was amazing."*

*"Great job over there Henderson County. Keep up the good work"*

*"It was an honor having Neil Sperry. I have been a fan for a long time."*



*Thank You!*

## Harvest Garden Groundbreaking

### Lydia Holley, Master Gardener



It was the perfect day for a groundbreaking. Henderson County Master Gardeners smiled as the rains cleared on October 16, a few minutes prior to the groundbreaking ceremony of Henderson County Master Gardener Association’s (HCMGA) newest project, the Harvest Garden. This garden is planned to be a hands-on demonstration garden for the public’s education in growing vegetables, fruit trees, herbs, grapes, and berries. A hoop house will allow members of the public to learn about seed starting and propagation. A compost area and rainwater harvesting system are also planned.

Although the air was chilly, the mood was light as Spencer Perkins, AgriLife Extension Agent; Yvonne Sparks, HCMGA President; Bob Miars, Chairman, Henderson County Regional Fairpark Board; and Wade McKinney, Henderson County Commissioner Precinct 2, delivered remarks to the crowd. Perkins stated the idea of this garden began because of the number of requests from Henderson County residents asking about growing fruits and vegetables. McKinney expressed his pleasure that the Henderson County Regional Fairpark facility had the room for this garden which will benefit the citizens of Henderson County.

Turning the damp soil with shovels supplied by Lowe’s were distinguished guests, local officials, Henderson County Extension Agents, HCMGA Officers, Harvest Garden Committee Members, Harvest Garden Area Managers, and other Master Gardeners. Rik and Sara Drummond, who awarded HCMGA with the initial funding for the Harvest Garden, were also on hand to witness the bright start of this project. The expected completion date is Spring, 2019.



### HCMGA Projects

#### **DREAM (D**emonstration- **R**esearch- **E**ducation- **A**pply - **M**aintain) Garden

- What began as a trial garden for Earth Kind roses has become a “Texas Cottage Garden” maintained by HCMGA at the East Texas Arboretum.

**Children’s Garden-** The HCMGA maintains a program to help educate the children at South Athens Elementary school about gardening and growing delicious and nutritious food.

**Library Series-** Educational presentations are hosted by the HCMGA on the third Tuesday of each month. These programs are open to the public in Athens at the Clint W. Murchison Memorial Library.

**Harvest Garden –** We are excited about our vision for a new harvest garden. The ground breaking was held on Oct. 16th. See Story on this page.

**Greenhouse-** The HCMGA maintains a greenhouse located at Trinity Valley Community College. This greenhouse allows us to educate others and grow plants that are sold at our annual spring plant sale.

**Plant Sale-** The HCMGA hosts an annual plant sale in the spring which is open to the public. Master Gardeners propagate and grow different varieties of plants and trees.

**Summer Series-** Workshops are provided in the summer months in an effort to share expertise and educate the public on various gardening topics.

**Fall Conference-** The largest fundraiser for the HCMGA, this conference includes guest speakers, a raffle/silent auction and a dinner which is open to the public.

## Harvest Garden Ground Breaking (cont.)

Gardeners in every corner of the world know they must work with the weather given them. Henderson County Master Gardeners were grateful that, instead, Mother Nature worked to clear the rain for the occasion as a cold front moved through that day. As if on cue, the rain resumed after the ceremony was complete.

### Harvest Garden at-a-Glance

Lessons and hands-on demonstrations given to the public throughout each step of growing fruits, vegetables, herbs and berries; composting; and rainwater catchment. We will also have lessons and hands-on demonstrations throughout the process of building a garden from scratch. Watch for our emails and announcements.

**Location:**

Henderson County Regional Fairpark Complex 3356 TX 31, Athens, TX

All Henderson County Master Gardeners will contribute in the success of the Harvest Garden. Due to its large size, the garden’s responsibilities for 2019 have been delegated as follows:

**Committee Members:**

- Education – Lydia Holley
- Maintenance – Lynn Stroud
- Production – John Maloch

**Area Managers:**

- Berries – Shannon Greene
- Composting – Bob Erickson
- Education Area – Lydia Holley
- Fruit Trees – Sheri Damuth
- Grapes – Sheri Damuth
- Herbs – Shannon Greene
- Hoop House – Sherry Sorrell
- Rainwater Harvesting - Bob Erickson
- Vegetables – John Maloch





## Japanese Maples

**David Bickerstaff, Master Gardener**



Japanese maple tree often refers to maple tree cultivars from *Acer Palmatum*, and also may include maple trees from species *Acer Japonicum*, and *Acer Shirawanum*. Planting a Japanese Maple tree in your garden is guaranteed to turn heads in the fall and gather admiring looks. The enormous variety of leaf forms, colors and tree shapes means that no matter what your taste or space restrictions, there will be a tree for you. Some grow into small trees 20 feet or more in height, others remain as low shrubs reaching five feet only after many years of growth. They may be upright in form, pendulous or cascading, with red or green leaves and as well as their stunning fall coloring, many have remarkable colors on their new spring leaves too. There are also a wide number of varieties with red or purple leaves all summer, which bring a unique highlight to any garden.

These trees have a reputation for being hard to grow, but this is largely undeserved. With attention given to their location in the garden and some minimal care, they will thrive and increase in beauty every year. Compared with many other trees and shrubs they have few pests or diseases and are versatile enough to thrive in locations ranging from full shade to full sun. They can be grown in the garden, in containers and of course they are ideal subjects for the ancient Japanese art of bonsai.

Unlike many plants, where each individual is very much the same as another, these trees are naturally very variable, with different leaf-forms, colors and tree shapes. Japanese gardeners began to collect these forms, and produce more from seedlings, so that today at least a thousand different forms are known. Many forms were developed in Japan and these of course have Japanese names, while others were bred in Europe or America and usually have English-sounding names. Although some purists only grow original Japanese varieties, many of the best and most popular were developed in the West and have been introduced back into Japan.

Maple trees have been a popular subject of Japanese art, poetry, and literature for thousands of years. Many classic Japanese works of art and poems are about the maple tree or the falling maple leaves. In Japan and abroad, the Japanese maple tree is viewed as a symbol elegance, beauty, and grace. The turning of colors on the trees is a highly-anticipated yearly event that brings many tourists out to Japan's national parks and temples to admire the spectacular foliage.

In gardens Japanese Maples are hardy form zone 5 to zone 8, with some being hardy into zone 9. Some varieties will thrive in zone 4 as well. In areas that are too cold the branches may suffer from damage in winter and die, although often the main stems will re-sprout. In hot regions the main danger is heat and sun-scorch, which can cause the leaves to shrivel in summer. When this occurs trees will sprout normally the following spring. Growing trees in shadier locations and making sure they have sufficient water will normally prevent this problem in summer. In very warm areas there may not be sufficient winter cold to stimulate the buds to re-grow and this does make it impossible to grow these trees in tropical and sub-tropical places.

Choose the location carefully when planting your tree. Protection from afternoon sun and drying winds is helpful in all but the coolest areas, although some varieties are more heat resistant than others. If you are planting a cascading form, a slope, bank or the top of a wall will show the beauty of this tree better than planting it on flat ground.

## Japanese Maples (cont.)

Caring for your new tree begins with preparing the soil. Your tree will do well in most kinds of soil, as long as it does not stay wet for long periods. Flooded soil is not suitable. Whatever the soil you have, your tree will do better if you add a generous amount of organic material before planting. This can be garden compost, well-rotted animal manures like cow, sheep or horse manure, rotted leaves or peat moss. One or two buckets of material should be dug well into the soil where your tree is going to be planted. Add some bone-meal, rock phosphate or superphosphate to give good root growth.

When planting, make sure you use plenty of water during the planting operation. Do not plant into dry soil and then just sprinkle the surface afterwards. Mulch of a rich organic material should be put on over the whole root area after planting. For the first year or two, make sure to water your tree regularly, once a week from spring to fall and twice a week during hot weather. In warm areas winter watering may be necessary during sunny and dry periods.

Pruning is not normally required, except for removing any small branches that may naturally die as the tree develops. Long shoots can be trimmed back a little to encourage denser growth, but trimming and heavy pruning could destroy the natural habit of your tree, which is its greatest asset. Trees in containers may need more regular trimming to keep them within the space available, but unless you are growing bonsai, trimming is one chore you can forget with your Japanese maple.

After thousands of years of collecting and breeding, there are at least a thousand different varieties of Japanese maples. Some are quite similar to each other and only of interest to collectors, but there are many unique and special forms of outstanding beauty which are very popular with all gardeners. The major areas of difference are:

- **Leaf form:** This varies from quite large and full to small and delicately divided into many narrow threads.
- **Leaf color:** Almost all trees showing attractive fall color, with some trees being grown specifically for this. Others have red leaves in spring and summer and these are perhaps the most popular. Some varieties also show strong colors in the new leaves, which can be pink, orange, red or even white in spring. These colors may change into red or green during the summer. Some trees also have variegated leaves, in yellow and green.
- **Branch arrangement:** Some trees have upright branches and look like 'regular' trees, while some have horizontal branches, forming a low, wide tree. Others have branches that fall at lower angles, forming pendulous, weeping and cascading forms.
- **Overall size:** Because of their relatively slow growth rate, and depending on climate and growing conditions, it can be hard to predict the ultimate size of a tree. Some will grow into small trees perhaps 15-25 feet tall, while others, especially cascading forms, remain low and spreading forever and may never even reach five feet in high, although they can be much wider across.

Two popular varieties are shown on the next page

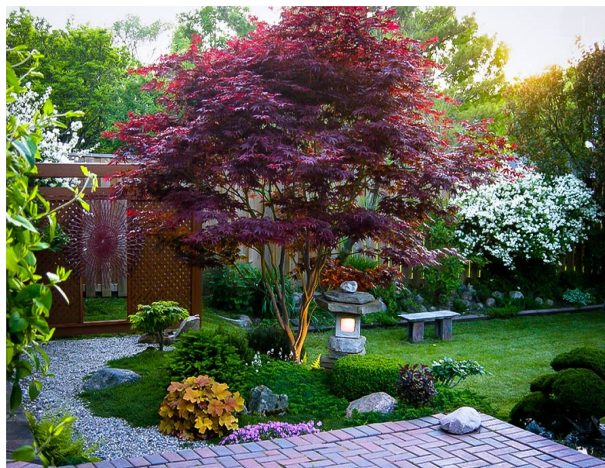
I would encourage you to include a Japanese Maple in your landscape!

## Japanese Maples (cont.)

**Bloodgood** is probably the most well-known and widely grown variety, and there is a good reason for that. This is the hardiest variety of all, growing happily with winter lows of minus 30, but also happy in hot summer weather. In time it can grow into a tree 20 feet tall, with an upright habit and semi-horizontal branches. The leaves are not as finely divided as some other forms, giving more substance to the tree and they are deep pink in spring, purple-red in summer and crimson in fall. The tree will grow well in shade, but in colder areas it also grows well in full-sun and there it will have the strongest summer color.



**Emperor, or 'Wolff'**, will grow into an upright tree about 15 feet tall, holding its purple-red leaf color from spring to fall, when it ends the season in a blaze of scarlet. It is also very fast growing, so a worthwhile specimen will develop in just a few years. It has another unique quality that makes it very useful in colder areas. Sometimes a tree will survive winter without any damage, but if you live in an area with spring frosts, early shoots on your trees and shrubs can be damaged. This tree is slower by a couple of weeks in leafing-out than other varieties, so it is much less likely to be damaged by a late frost.



## Selected Gardening Tips

### November

- ◆ The shorter days and incoming cold fronts confirm the changing of seasons. The first freeze is not far away and plants must adjust to new conditions. The average first freeze is about November 15, and you should have already prepared your tender plants for that eventuality. Houseplants often are damaged below 40 degrees, and tropical plants cannot stand a frost or even light freeze.
- ◆ Harvest all warm-season vegetables before a hard freeze ends production
- ◆ Later in November and on through February is the ideal time to dig and transplant trees and shrubs during their dormant, non-growth period. Right now is really an ideal time to landscape with trees and shrubs, especially those grown in containers. Roots continue to grow even though the rest of the plant is dormant, so these plants will be more ready when the stresses of summer.
- ◆ Now that summer is over, and so are summer flowers, it's time to replace them with winter-hardy flowers for color. Pansies are the number one choice for blooming bedding plants. They're hardy, will bloom over a long season, and come in a wide array of colors. The old-fashioned face varieties have been steadily improved for better garden performance, and many new varieties with solid or bi-colors without a face are now available. You can get anything from bold orange, yellow and red, to pale pastels. Miniature pansies are also becoming popular, as well as the old fashioned viola and Johnny Jump-Ups.
- ◆ Don't forget tulip and hyacinth bulbs in the refrigerator. They can be planted anytime this month if they have received 60 or more days of chilling. It's not too late to plant daffodils, either.
- ◆ With colder weather approaching, birds will appreciate our help in supplying food, water and shelter.

### December

- ◆ There's still time to plant pansies. These colorful annuals will live through the winter and be spectacular next spring. They work especially well when mixed with bulbs. Chose bright and light colors if you'd like the bed to be seen from a distance.
- ◆ If you are planning to create a new shrub, flower or rose bed for next spring, go ahead and prepare the soil now. Dig it up, remove the weeds, and work in leaves and compost.
- ◆ Don't get too anxious to do major pruning. Most woody trees and shrubs can be safely pruned December through early March. But, if you can't justify the removal of each branch or limb, put up your clippers and go spade the garden instead.
- ◆ If it continues to be dry this month, occasionally water the lawn, shrubs and small trees to help prevent winter damage.
- ◆ Winter is a good time to browse plant catalogs, visit nurseries and study your landscape to make improvements or additions. If you are not a do-it-yourselfer, get professional advice on landscape design.
- ◆ Don't let fallen leaves remain on the lawn all winter. Either mow them back into the lawn, collect them to be used as a weed suppressing and water conserving mulch, or compost them for use next spring and summer to improve the soil.

Visit [easttexasgardening.tamu.edu](http://easttexasgardening.tamu.edu) for a more complete list of monthly tips. You can also purchase the HCMG Monthly Gardening Guide (see page 4 for more information).

## Brown Patch in Turfgrass

### Texas A&M Agrilife Extension

You may have seen coloration in your lawn as fall approached. We have included an article from the extension office to educate you on the disease and treatment.

Brown Patch (fungus – *Rhizoctonia solani*)

**Host Grass:** Hybrid Bermuda (*Cynodon dactylon*), Common Bermuda, Bentgrass (*Agrostis palustris*), Centipede Grass, Fescue, Perennial Ryegrass (*Lolium perenne*), Poa Series (*Poa* sp.), St. Augustine Grass (*Stenotaphrum secundatum*), Zoysia Grass (*Zoysia japonica*)

**Cause and Symptoms:** The name, brown patch, is not very descriptive of the varied symptom expression caused by *Rhizoctonia* spp. on turfgrass. Symptoms differ on cool- and warm-season grasses and vary depending on environmental conditions and cultural practices.

Turfgrass affected by brown patch generally will exhibit circular or irregular patches of light brown, thinned grass. On cool-season grasses (bent, rye and fescue) during periods of warm, humid weather, a darkened border or smoke ring may develop at the outer margin of the patches. The smoke-ring symptom is not reliable for diagnosis. Symptoms on warm-season grasses such as bermuda grass or St. Augustine grass include circular to irregular patches of blighted turf. Patches up to several yards in diameter commonly develop in the fall, winter and spring when these grasses are approaching or emerging from dormancy, evening temperatures are below 68°F, and rainfall usually increases. Active infections are noticeable by yellow leaves at the edges of patches. Leaf sheaths become rotted, and a gentle tug on the leaf blade easily separates the leaf from the runner. Brown patch usually does not discolor roots. Disease develops most rapidly when air temperatures are between 75°F and 85°F and wet conditions are present and generally subsides when air temperatures rise above 90°F.

**Control and Management:** Water only as needed and early in the day to remove dew and allow the grass to dry quickly. Avoid over fertilization in spring and fall. Improve the turfgrass root system with good drainage and aeration to reduce damage caused by brown patch. Fungicides are most effective when used on a preventive basis.

Content edited by: Young-ki Jo, [ykjo@tamu.edu](mailto:ykjo@tamu.edu), Assistant Professor and Extension Specialist, Dept Plant Pathology & Microbiology, Texas A&M University, Texas AgriLife Extension Service



# Can You Grow It In YOUR Garden? Maybe!

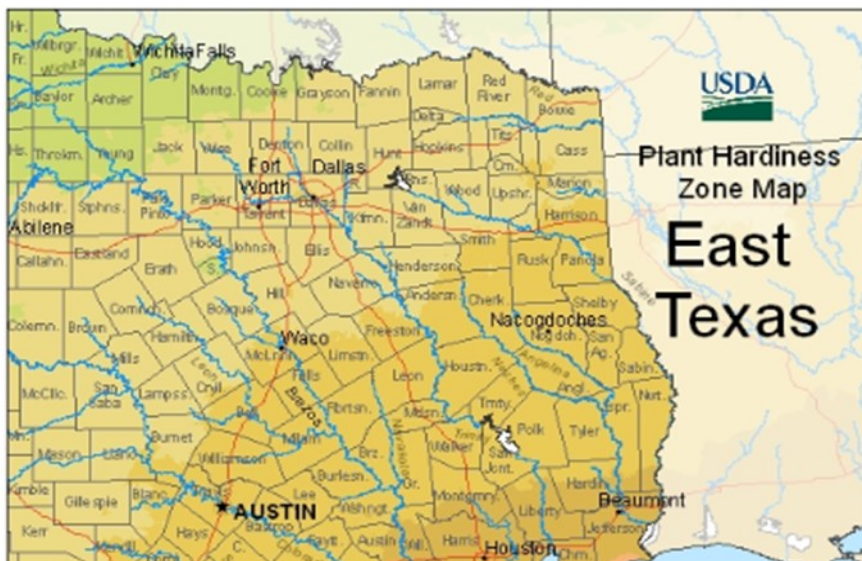
Judy Haldeman, Master Gardener



Do you want to add something new to your garden or get rid of something that didn't do as well as you had expected? Fall and winter is the time for gardeners to reevaluate their gardens. Now is also the time that your mailbox will fill with enticing catalogues of wonderful plants, seeds, and bulbs. Before you start filling out order forms or making a telephone call to place an order, STOP! Most catalogues are printed for the entire country. You need to be sure that what you order is compatible with your area.



Most of you are familiar with the United States Department of Agriculture (USDA) Hardiness Zone map that was developed with 11 zones. In a 2012 updated map to the left, the map was divided into 13 zones based on average annual low temperatures for those areas. It was then further divided into two subsets for each of the 13 zones. For a larger map see the USDA Hardiness Zone web page.



Average Annual Extreme Minimum Temperature 1976-2005		
Temp (F)	Zone	Temp (C)
5 to 10	7b	-15 to -12.2
10 to 15	8a	-12.2 to -9.4
15 to 20	8b	-9.4 to -6.7
20 to 25	9a	-6.7 to -3.9
25 to 30	9b	-3.9 to -1.1
30 to 35	10a	-1.1 to 1.7

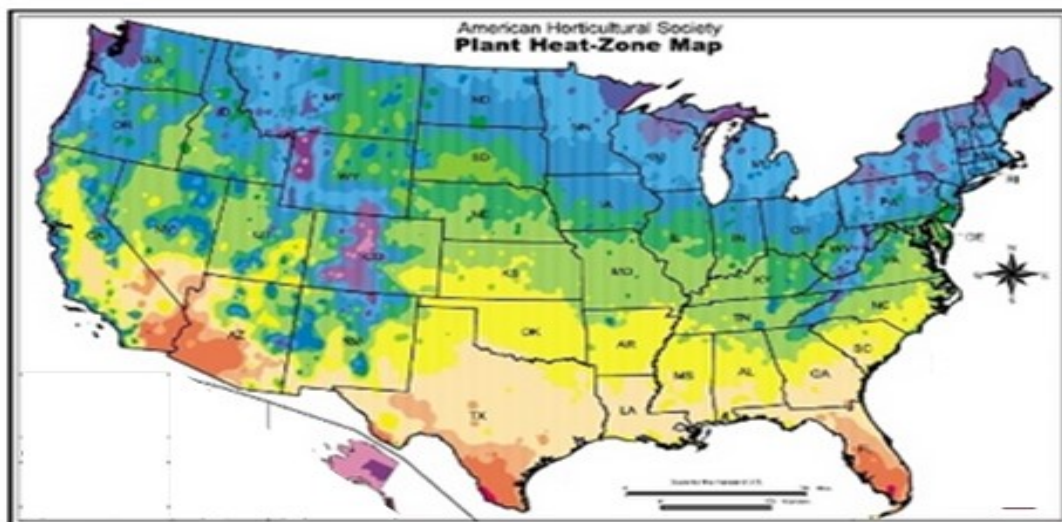
0 20 40 80 Miles  
0 30 60 120 Kilometers

## Can You Grow It In YOUR Garden? Maybe! (cont.)

Every plant species has a minimum winter temperature below which it cannot survive. The table next to the map on the previous page indicates that if you live in Hardiness Zone 8a, you can expect the temperature to drop to between 10°F and 15°F at least once each winter. This doesn't mean you shouldn't use a plant from the colder hardiness Zone 7 or even Zone 6, but you need to be cautious when selecting a plant labeled Zone 9 or Zone 10 because it might not make it through the winters here in Texas.

If you look at the US map on the previous page, you will notice that the Pacific Northwest and the central East Texas share Zone 8 or Zone 9. However, if you have tried to grow foxglove or most Rhododendron (except some Azaleas) in our area, you would have been doomed to failure. Why? Both are in Zones 8 or 9. In the late 1990s, the American Horticultural Society (AHS) developed the Heat Zone Map. This map is based on the number of "heat days" experienced in a given area. A "heat day" is defined as a day in which the temperature climbs to over 86°F. Why 86°F? That is the degree at which scientists have determined that many plants begin to experience physiological damage and start to shut down their functioning. Athens, Texas is in Heat Zone 9 which means that on average we will have between 120 and 150 days per year over 86°F. Tyler is in Zone 8, with 91-120 days per year over 86°F. There are interactive maps online that can give more detail. However, the broad picture is that in Texas there are plants we cannot grow because they cannot withstand the summer heat here.

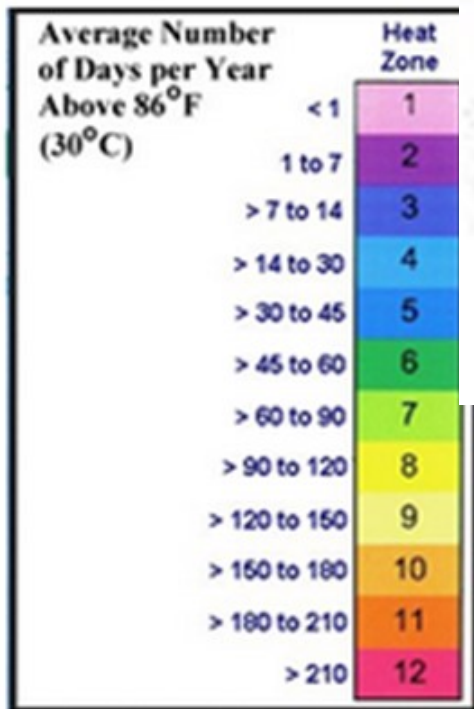
Currently there is a move to encourage nurseries, seed sellers, and bulb sellers to include both zone categories on plant tags or in their catalogues. In the future, you may see a dual numbering system on



plant tags. The Plant Hardiness Zone will be listed first with the Heat Zone last. For example, a tag with 5-8, 6-1 would indicate the plant is relatively cold hardy, but can't tolerate extreme summer heat.

## Can You Grow It In YOUR Garden? Maybe! (cont.)

If your catalogue has a map of the areas suitable for a specific plant, you can tell quickly if the plant in question will survive. The map below shows the area of the U.S. in which Foxglove will thrive.



There are other important considerations in selecting plants for your area. These include soil type, soil pH, soil fertility, sunlight, rainfall, humidity levels, etc. All of these are important, but the best place to start your garden planning is to determine if that desired plant can withstand BOTH the cold and heat of your area. HAPPY PLANNING!



## Grown by Robots with Love!

David Bickerstaff, Master Gardener

I am fascinated with alternative ways to grow produce and wonder when I pick up a strawberry at my local grocery store— where was this grown? I found that the average travel distance for strawberries, tomatoes, heads of lettuce and other items can be up to 2,000 miles! So I looked a few products in my local grocery store and what did I find? Cherry tomatoes from Mexico and blueberries from California. Why you ask? Farming today is centralized to a small number of counties in the entire United States. So unless you are growing your entire supply of vegetables in your own garden, or only buying from your local farmers market, please read on.



You see there are several significant factors impacting farms today:

- **Labor scarcity**—The average farmer is 58 years old and we are finding the newer generations across the globe are not taking up agriculture. There's a multibillion dollar loss right now because there are not enough people to do the work
- **Access to fresh produce**—Due to the concentration of farms (remember the 2,000 mile journey?) there is not enough access to produce grown close to the consumer
- **Feeding a growing population**— The world is growing at around 83 million people per year. Providing this ever increasing population with a sustainable farm this is grown close to the consumer is a challenge.
- **Water scarcity**—Agriculture is both a victim and a cause of water scarcity. Agriculture is the largest water user globally and a major source of water pollution. Unustainable agricultural water use practices threatens the sustainability of livelihoods dependent on water and agriculture.

I came across an amazing company—you were wondering when the robots were coming into this story—well get ready! Brandon Alexander grew up on and around farms in Texas and Oklahoma. He then used his robotics degree from the University of Texas and his experience at Google X to attempt to solve for the factors above. He co-founded **Iron Ox** with Jon Binney. This start up began in 2015 and uses two robots and a cloud-based “brain” to grow lettuce, tomatoes, basil and more in a hydroponic system in its first production farm in San Carlos, California—a facility they claim is the first indoor, fully autonomous robot farm. The company is now growing 8,000 square feet of produce, and plans to begin selling to chefs and restaurants later this year, then local grocery stores in 2019. Eventually, the startup wants to open farms across the country, offering local produce year-round.



Iron Ox co-founders Brandon Alexander and Jon Binney

## Grown by Robots with Love! (cont.)

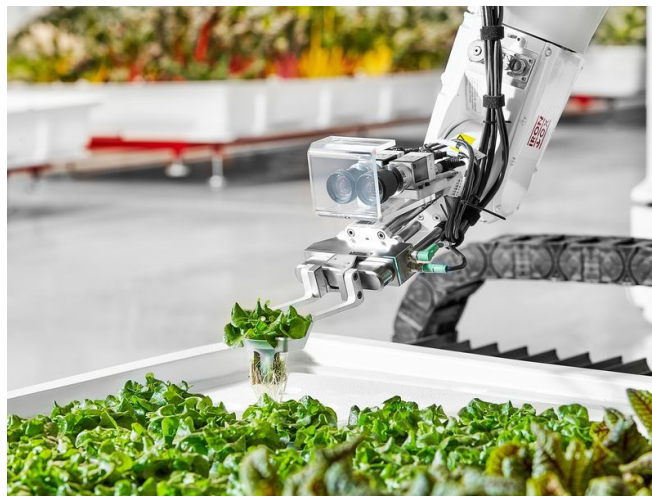
Brandon and Jon spent months just talking to farmers and just understanding the landscape—outdoor farms, indoor farms, all different approaches. Hydroponics, aquaponics, vertical farms, they tried to take a broad look at everything before they selected their approach.

There's been a significant amount of technology improvement on outdoor farms, even in the past five years. Cheaper sensors, cloud computing, more robust machine learning algorithms, so on. Fresh produce hasn't really seen the same level of technology that a lot of broad acre processed crops have, like corn, soybeans, wheat, and so on. So that's really where they felt there was a real opportunity to innovate.

Greenhouses, indoor farms, they can help grow locally, but they're still very labor-intensive processes. What Iron Ox tried to do was reimagine the farm, taking all the learning from the past, but also combining it with state-of-the-art robotics and machine learning. To really redesign the process around robotics. Hydroponics allows them to grow year round, but the robotics allows them to constantly monitor their produce for a more consistent product. So, it shouldn't matter what time of the year, it should always be this peak quality produce, as if it was—and it will be—harvested that morning!

They have two different robots. A large mobile robot, *Angus*, is constantly navigating through the farm looking for what's going on at a macro level. And then they have this robotic arm with a stereo camera, kind of like your eyes (see below). The depth image allows it to see each head of lettuce, or each crop, in full 3D.

They are using computer vision based on machine learning to recognize warning signs of powdery mildew, or aphids, or tip burn, and then the cloud-based brain can actually take data from the farm, like pH level and temperature sensing, and make a decision on what the issue is and the corrective action to be taken. What?



A robotic arm performs a transplant operation

## Grown by Robots with Love! (cont.)

The farm uses four foot by eight foot hydroponic systems that weigh roughly 800 pounds, with water and nutrients, everything the plant needs to live and thrive. Every day, one of these modules needs an operation—a feeding, an inspection or harvesting. Angus, which weighs a thousand pounds, is commanded by the “brain” to do an operation, like “Hey, this hydroponic module 14 has some purple bok choy that needs harvesting.” And so Angus goes over and picks up this hydroponic system and then it brings it over to our robotic arm. And then our robotic arm knows, OK, this is a harvesting operation. It scans this module, and it figures out where every head of lettuce is, where every leaf is and it does that harvest, or a transplant operation. The robots don’t have to do their job autonomously. This cloud-based brain is constantly deciding how it should happen, basically optimizing the farm.

**Can robots grow great produce?** Iron Ox conducts internal blind taste testing of their produce. They buy off the counter from great grocery stores, and then we compare it to their harvests. They capture qualitative data of, not just taste, but appearance, texture, crispness, bitterness, sweetness, all these different attributes.

The results? The company is growing crops **using 90% less water** and growing **30 times the amount of crops per acre of land** than normal farming!

The Iron Ox ([www.ironox.com](http://www.ironox.com)) team is dedicated to addressing some of the most significant issues in food security, now and in the future. They are focused on sustainable, scalable food production for a changing climate and an ever growing population. Their process eases the growing pressure of food waste and labor scarcity by providing a stable supply of fresh, nutritious food for our communities.

Beam me up Scotty and get ready for the robots to provide our next fresh salad!



*Angus* navigates the farm and moves the 4ft.x8ft. hydroponic systems to the robotic arm for various operations

## Spencer's Talk

### Spencer Perkins, Henderson County Extension Agent

I hope everyone is preparing for a wonderful holiday season. We are blessed in Henderson County and it should be an exciting 2019!

I have included an article below from Texas A&M Agri-Life Extension that you might find interesting and useful.



#### Composting to Kill Weed Seeds

*Joseph Masabni Assistant Professor and Extension Horticulturist, The Texas A&M University System*

Composting occurs when organic materials—such as yard trimmings, food wastes, and animal manures— decay to form compost, an earthy material that can be used to improve garden soil. Compost benefits gardens by:

- Supplying many nutrients that plants need
- Improving the soil's physical characteristics, such as texture
- Enabling the soil to better hold water and nutrients
- Helping aerate the soil

The composting process also naturally kills weed seeds. Properly managed, a compost pile should easily reach 140°F, which breaks down all organic matter, including weed seeds.

The key word is *properly*. Organic matter that is improperly composted can introduce problems into a garden. Raw animal manure often contains disease-causing organisms such as E. coli and Salmonella, which can make people sick if they eat vegetables contaminated with them.

Manure can also contain live weed seeds. These seeds can spread easily from one farm, field, or garden to another, multiplying the problem from one weed to thousands of new weeds.

#### How does composting reduce weed seeds?

Proper composting occurs under the following conditions:

- The ratio of carbon to nitrogen (C:N) ranges from 25:1 and 40:1. This ratio balances both energy (carbon) and nutrients (nitrogen).
- The compost is about 40 to 60 percent moisture by weight.
- The oxygen content is 5 percent or more.
- The pH level ranges from 6 to 8.

## Spencer’s Talk (cont.)

In these conditions, microorganisms begin breaking down the organic residues and releasing heat. A clear sign that the compost is decaying properly pile is the release of steam when the surface of the pile is disturbed (Fig. 2). As the temperature rises above 113°F, heat-loving microorganisms replace the earlier microorganisms. At that stage, the pile will enter the active phase, with temperatures reaching 131 to 170°F in 1 to 3 days.

These high temperatures are the key to killing weed seeds in a compost pile. In general, more seeds will die the longer that the temperature in the pile remains within this range.

Weed	Temperature (F)			
	140°	122°	115°	108°
Annual sowthistle	<1.0	2.1	13.3	46.5
Barnyardgrass	<1.0	5.4	12.6	Unaffected
London rocket	<1.0	4.0	21.4	83.1
Common purslane	1.3	18.8	Unaffected	Unaffected
Black nightshade	2.9	62.0	196.6	340.6
Tumble pigweed	1.1	107.0	268.5	Unaffected

Most gardeners have a static compost pile. They believe that composting consists of filling the pile, waiting a few weeks, and then magic happens—the compost is ready. In reality, most compost piles are merely trash heaps of garden and kitchen waste.

To compost properly, keep the C:N ratio at 25:1 to 40:1 and the moisture, oxygen, and pH in the pile at optimum levels.

**C:N ratio:** To maintain the correct C:N ratio, build the pile with alternating layers of brown matter such as dead tree leaves, and green matter such as grass clippings. Adding equal amounts of green matter (grass clippings, kitchen waste) and dry matter (dry leaves) will often achieve this desired ratio.

**Moisture:** Water the compost pile regularly to keep the microorganisms alive and to soak the weed seeds fully. Don’t add so much water that it flows out from the bottom of the pile.

**pH:** pH meters are available in garden centers and can be used to estimate the pH level of the compost pile. However, an easy and more practical way to tell whether the compost pile is “cooking” properly is by its smell. If the compost pile smells sour or like a rotten egg, the pH is not correct. A compost pile at the proper pH should smell earthy, like freshly dug garden soil.

If the pile smells bad, check to see if it is too wet. You may be adding too much water or wetting too often. Let the pile dry for a while, and wet it less often. Another option is to turn the pile and mix it thoroughly.

## Spencer's Talk (cont.)

If the first two measures do not help, mix lime into the pile to correct the low pH level and reduce the rotten egg smell.

**Turning:** Periodically mix the materials within the pile to introduce more oxygen and distribute the moisture evenly (Fig. 3). To add as much air into the pile as possible, break up any clumps, and move the drier material from the outer edges into the center.

Turning the compost will also enable the temperatures at the edges and surface of the pile to rise high enough to kill weed seeds. The pile must be mixed thoroughly during the active phase to ensure that all the material is heated for a long enough period to kill the seeds.



Build your compost pile with alternating layers of green matter (grass clippings), and brown matter (dead leaves), to maintain a proper carbon-to-nitrogen ratio.



Watering and turning the compost ingredients regularly will help keep microorganisms alive, aerate the pile, and distribute the moisture evenly.

**Henderson County Master Gardeners**

The Master Gardener program is a volunteer development program offered by Texas AgriLife Extension Service by disseminating horticultural information to individuals and groups in Henderson County and to develop and continue community projects related to horticulture. We are a group of volunteers who share a love of gardening and are eager to learn and share their knowledge.



**Henderson County Master Gardeners**

Contact: Ariel Conway  
 Henderson County Extension Office  
 Office: (903) 675-6130  
 Fax: (903) 677-7222  
 Courthouse 3rd Floor, RM 300  
 100 E Tyler St  
 Athens, Texas 75751-2547  
 hendersoncmga@gmail.com

**‘Learn at the Library’ Series**

**November**

No presentation— Enjoy Thanksgiving!

*“How Invasive Plant Species Affects You”*

**December 18th**—5:30 pm—6:30 pm

Peter Cole, HCMG Master Gardener, will discuss invasive species (plants, animals and insects) in Texas, and the impact they have on our lives.



The Library Series is open to the public and is held from 5:30pm to 6:30pm at the Clint W. Murchison Memorial Library in Athens, TX.

**2018 Officers:**

**President**  
**VP Program & Admin**  
**VP Member & Com. Edu**  
**Secretary**  
**Treasurer**  
**Historian**  
**Advisor**  
**Newsletter Editor**

**Yvonne Sparks**  
**Jeanne Brown**  
**Lora Tomlinson**  
**Open Position**  
**Kathi Murphy-Boley**  
**Sara Drummond**  
**Spencer Perkins**  
**David Bickerstaff**



***HCmastergardener***



***txmg.org/hendersonmg***



***hendersoncmga@gmail.com***



***Texas master gardeners***



The members of Texas A&M AgriLife will provide equal opportunities in programs and activities, education, and employment to all persons regardless of race, color, sex, religion, national origin, age, disability, genetic information, veteran status, sexual orientation or gender identity and will strive to achieve full and equal employment opportunity throughout Texas A&M AgriLife.