



## THE INSIDE DIRT

A MONTHLY NEWSLETTER



BY  
THE WALLER COUNTY MASTER GARDENER ASSOCIATION

### NEW BEGINNINGS: A MESSAGE FROM THE PRESIDENT

My husband will tell you I love the word “new” especially if it’s a new plant, a new purse or a new pair of shoes. New can also mean a new beginning as in a new decade, a new year, new officers, and for me a new job as president of this wonderful organization, and I’m looking forward to it.

As the old adage goes, “you’ve come a long way baby,” so has the Waller County Master Gardeners. Unlike many other Master Gardener organizations, we have only been around since 2013. Through great leadership and hard work of our members, we have increased our membership from 8 to 32 active and 6 future members going through training right now.

Last year, Waller County Master Gardeners had many firsts. We put on our first Vegetable and Herb Sale, first on-line Fall Tree Sale using PayPal, and first Advanced 2-day Budding & Grafting Class presented by A&M’s Tim Hartmann that was attended by 20 people from across the state. Without the expertise and hard work of many of our talented members, we would not have been able to accomplish these milestones.

This year, we too will have many firsts. I personally don’t believe in New Year’s resolutions, but I do believe in setting goals, and this year’s goals are set high. Last year, volunteer hours were 3,065 which averaged to \$70,730.31 or \$23.00 an hour in savings for Waller County. This year I would like to see our volunteer hours increase to 4000. My visionary statement for this year includes the sentence: “We’ll share our knowledge through a website, a newsletter, a network of trained members and a speaker series that’s open to the public.” New this year is a “Lunch & Learn” series with master gardener speakers presenting the 2nd Wednesday of each month from 11:30 to 12:30. We also have great guest speakers with expertise in many different fields scheduled for the first Thursday of each month from 9:00 to 10:00. A “Grow & Tell” presentation coming in March and “A Plant Exchange” in October are also new to our organization. On top of that, thanks to Mary Karish, we will once again have a newsletter, and our website and Facebook page are being taken care of by some very talented members.

*Connie Holub*

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## *Reflections of a Frazzled Gardener*



The season of nail biting and jittery nerves usually starts in February and continues on to March. It is that time of the year when farmers and gardeners are waging bets on the weather. The question that is always begging an answer, “Will we have a late freeze that wipes out blossoms on fruit trees and desiccate tomato plants?” If I am able to forecast the weather with the accuracy of Swiss run trains, I would have retired to the Bahamas by now.

The truth is, no one can predict the weather, yet. Of course, you can always opt to live on the edge and hedge your bets that nature will be nice to you this year, or you can roll with the dice, and consider gardening an occupational hazard. The weather can be your ruthless enemy or your best friend, depending on his mood. How to woe him,

to bid your wishes, remains a mystery to me.

If you manage to get through the weather hurdle, do not get too comfortable. You have not yet met the leaf footed bugs amassing at your garden border, ready to commit a carnage against your plants or maybe some other forsaken creature planning havoc in your peaceful empire.

So, why we do not give up? Because we love it. Every year and every season, we gingerly lay down our seeds and pray to the goddess of all things plants to bring them to life. We frantically check on them every thirty minutes, besieging them to be agreeable and germinate. We are racked with self-doubt, we make deals, we comb through gardening books to figure out what could have gone wrong!

Then a faint hint of a stem emerges, just when it was meant to be and not a moment too soon. Suddenly, all the torturous nail biting, self-bargaining and recurrent oaths of giving up gardening, disappear.

Once again, we congratulate one another for our ability to grow anything and for our special green thumbs, not that I have ever seen one! And the season of growth continues, as it has done for thousands of years.

## *Saving Texas Prairies, One Acre at a Time*

Imagine a field covered with flowers, shrubs and trees, serenaded by birds of various shapes and sizes, and brooks snaking through troughs. Susie Martin a volunteer at Katy Prairie Conservancy presented the possibilities and the efforts made to save Katy Prairie. Martin presented the work of the Conservancy to a packed audience, at the Waller County Master Gardener Association monthly meeting, that takes place on the first Thursday of each month at the county's extension office.



Katy Prairie Conservancy relies on volunteers to develop educational outreach programs on the biodiversity of the prairies and the impact land development is having on birds and insect population. Their mission is to develop land conservation that serves as a tool to

connect future generations to their natural heritage. In addition, Katy Prairie Conservation has restored more than 3,000 acres of wetlands, and is working on restoring prairie land that has protected Texas from previous flooding events.

According to Martin, the approximate area prairies occupied at one time was 400,000 square miles. Today, due to land development into subdivisions, highways and strip malls, it is less than 4 percent. As a result, many species of birds and insects have become extinct, and areas in Houston have become susceptible to flooding. To demonstrate the impact prairie grass has on flooding, Big Bluestem roots, a native grass variety can reach 9 to 10 feet in depth. Historically, these roots have kept the soil in place and protected it from erosion.

Aside from soil stabilization, prairie grasses are drought tolerant, require very little nutrients, and can fend for themselves. Finally, they are the primary hosts to several ecosystem functions; providing food and shelter to birds, serving as a larval host plants for several species of butterflies and moths, and are nectar producers that attract pollinators.

You can play an important role in prairie conservation by planting native grasses, trees, shrubs and flowers on your land. Katy Prairie Conservancy website is a wealth of information on vegetation that will attract birds, insects and pollinators. You can even go further in your efforts by entering into a voluntary agreement with Katy Prairie Conservancy by designating portions of your undeveloped land as a prairie area. For additional information on restoring prairie land, visit [www.katyprairie.org](http://www.katyprairie.org).

## Is Gardening the Elixir of Longevity?



Are you the proud parent of a plant? If you are, then you are in for a major treat.

An eight-year-old study conducted by Harvard T.H. Chan, School of Public Health, the graduate medical school of Harvard University in Boston, Massachusetts found that women who took up

gardening experienced 12% lower mortality rates than non-gardening women.

The study attributed several factors that contributed to longevity: Gardeners are more likely to engage with other gardeners. Bragging about plants, gossiping about plants and giving gardening advice qualifies. Also, gardeners are more physically active and experience less pollution. Let's face it, more plants, means more oxygen. Besides, plants that may require some discipline, will need a gardeners' intervention. Otherwise, they will develop an attitude. Finally, gardeners tend to retain their wits. Who else memorizes species and genus and all manners of plant behavior, except for crazy gardeners?

I am not sure why men were not included in the study. I will however assume that since men carry the same 46 chromosomes, then they are more likely to experience the same positive effects.

Are you still sitting on the side line? Gardening is a cheap form of cosmetic intervention, without recovery period or side effects. "Ask Maxine, she has all the answers."

## ***SOIL REGENERATION THROUGH COVER CROPS***



***Photo 1. Both cowpea on the left and soybean on the right, can be included in a cover crop cocktail.***

Farmers for hundreds of years have grown cover crops as a means of enriching the soil. The use of chemical fertilizers came into use shortly after World War II. Consequently, salts commonly associated with fertilizers have depleted the soil from organic matter, reduced the immune system of plants and destroyed microorganisms. Now farmers are looking for ways to regenerate and re-mineralize the soil through cover crops planting.

The old dictum, “what is old is new again,” cover crops are making a comeback. Researchers and scientists are studying how a mixture of cover

crops can enhance the soil fertility, protect from erosion and suppress weeds. Justin Duncan, a sustainable agriculture specialist with the National Center for Appropriate Technology's Southwest Regional Office, has spent years researching cover crops for hot and humid areas. Speaking at the Texas Organic Farmers and Gardeners Association (TOFGA), annual conference in Belton, Texas, Duncan said, ‘Most of the current literature is geared towards the northern states, like Minnesota and Michigan. Some of the things I figured out in my trials and errors is that cooler areas have much more organic matter. We are lucky to have 1/2 to 2 percent in organic matter, as compared to the 5 percent of the northern states.’

Soils maintain huge amount of water through organic matter. However, the hotter it gets, the more water is lost thru evaporation, trans evaporation, etc., leading to a loss of water holding capacity and decomposition of organic matter. According to Duncan, ‘We will need twice the amount of input of organic matter in hot areas than cool areas to break even. If an organic farmer chooses a different method of production like the no till, he will lose half the amount of organic matter as compared to conventional tillage.’

“In theory, no till in hot areas should equalize the production in cooler area. But it doesn’t. If you are building organic matter on top of the soil, but are interested in storing it in soil, you cannot incorporate it with a machine, because it is now

a no till method,' Duncan added. The alternative solution is to rely on soil organisms to move organic matter. In the north they build compost piles to generate organic matter, but according to Duncan, in the south, compost volatilizes too much nitrates and carbon.

The ideal solution is to plant cover crops that are well adapted to the hot and humid climate of the southern region. Cover crops grow organic matter right in place and add Nitrogen to the soil. They use rhizobium, a disease that benefits the plant. The rhizobium attaches to the root hair of plants and causes nodules to grow. The right rhizobium will not only feed the plant, but also move minerals and nutrients from the sub soil to the top soil. These roots are quite deep reaching 5 to 6 feet. They pull what they need and make it available for the next crop. They also increase soil porosity, break compaction and after they die the roots decompose and leave a mat like appearance that suppresses weed growth, but water filtration continues to go through the spaces left by the roots.

Below are some of the cover crops Duncan recommends growing in the southern regions:

**Kudzu:** A perennial, in the pea plant family, has the ability to feed the world, the soil, and livestock. Although it has been dehumanized as invasive, it can be easily controlled by raising goats and sheep, who love to feast on it.

Austrian Winter Peas are best planted in the cool weather season. By letting them complete their

life cycle in late May, they will leave this nice brown mat of veggie matter, and provides about 89 to 90% weed protection. They can fix up to 200 pounds of Nitrogen per acre.

Perennial peanut has been grown in Florida with great success. They fix about 150 pounds of Nitrogen per acre. They have showy yellow ornamental flowers and are propagated by rhizomes inoculant.



**Photo 2: Cover crops at a home gardener in Denton, TX**

Cover crops are not just limited to generating organic matter. According to an article posted on January 22, 2020 on Civil Eats, Juanita Popenoe, agricultural extension agent for commercial fruit production at the University of Florida Institute

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of Food and Agriculture Science, has been working with Florida citrus growers to combat citrus greening. Citrus greening is a viral disease that is fatal to the citrus plant family and to date, there is no known cure. According to the study, researchers have been observing that infected citrus are able to produce good fruit.

For additional information on cover crops, visit [www.attra.ncat.org](http://www.attra.ncat.org)

Although this study is in its infancy, researchers are optimistic about the positive results cover crops may have on building organic matter, increase plant immunity, generate vital nutrients, and retain moisture. In the meantime, farmers and gardeners can benefit in planting cover crops in their fields, just like their ancestors have done for hundreds of years.



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## A BRIEF INTRODUCTION TO GRAFTING – Part I

Plants can be propagated in many ways; by seeds, cuttings, grafting (budding), and division. Grafting, a more advanced method of propagation will be discussed in a two-part series. The first part will be a brief introduction, the second, about application aspects, such as rootstock, tools, etc.

Grafting is taking part of a plant, selected for specific characteristics such as flowers or fruits (called scion) and grafting (attaching) it to another plant selected for its roots (called rootstock). The rootstock is generally the bottom part, and the scion is the top part, and the cambium is the tissue that connects top to bottom or scion to rootstock. The graft is where the scion and rootstock join.

### REASONS FOR GRAFTING

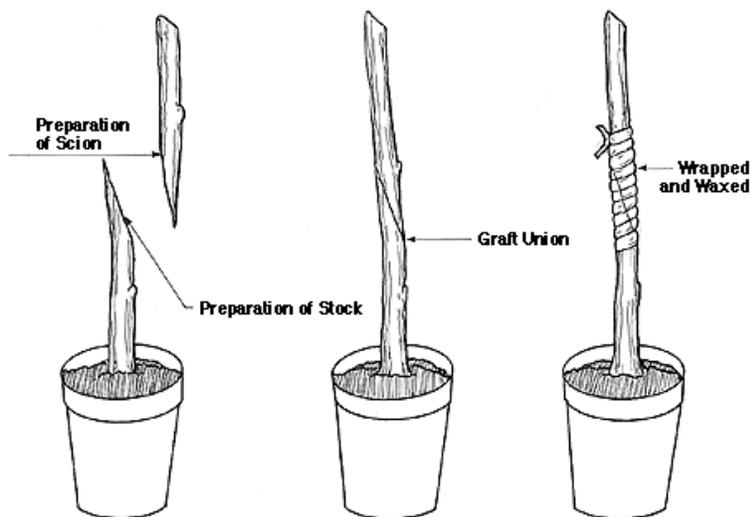
Just as there are many types of grafts, there are many reasons to graft plants.

- A commercial orchard may need to change their established orchard to stay competitive with the newer varieties that are disease resistant, drought tolerant, or produce better yields. Thus, a compatible new variety or cultivar can be grafted onto the existing rootstock.
- Several grafting techniques can repair damage to trees or other plants caused by pests, maintenance equipment, or winter storms.
- For fruit trees that are not self-pollinating (self-fertile), a second compatible fruit tree is required for pollination (called cross-pollination). To produce fruit on this female plant, a male plant must be growing nearby. If this is not the case, grafting a scion from a male plant onto this female plant will increase the chances of cross-pollination.
- Grafting can create “designer” plants, for example, grafting plants with a weeping growth habit onto standard rootstock.
- Grafting onto a hardy seedling might perpetuate trees or plants that have a weak root system thus increasing the rate of production.
- Grafting can increase the seedling growth rate by grafting a seedling onto an established plant with a good root system, thus reducing the time required for them to flower and fruit, saving time, space, and money.

### GRAFTING TECHNIQUES

There are more than 40 types of grafting techniques classified generally into three technique types.

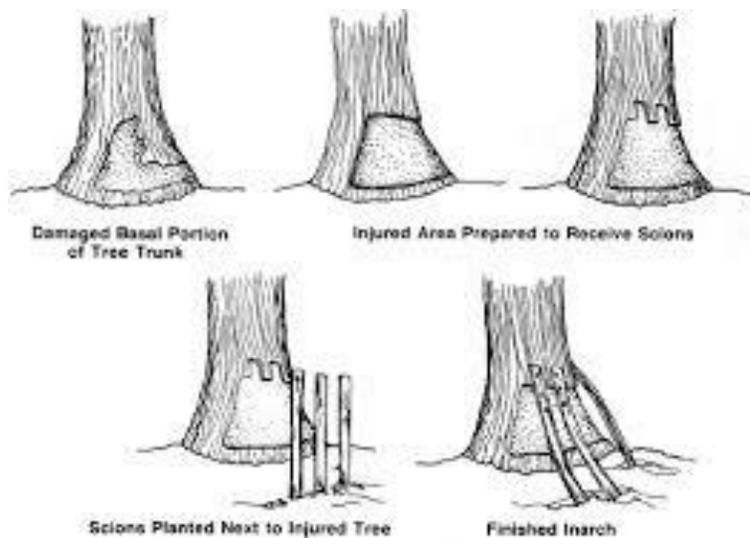
- Detached Scion Graft – where the scion is inserted into the top of the severed rootstock shown below:



- **Approach Graft** - where 2 independent, self-sustaining plants are grafted together shown below:



- **Repair Graft** - used to correct damage done to established trees shown below.



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## GRAFTING SUCCESS

According to Hartmann and Kester's *Plant Propagation Principles and Practices*, grafting success depends upon:

- The rootstock and scion being compatible.
- Placing the cambium of the scion in direct contact with that of the rootstock.
- Performing the grafting operation when the rootstock and scion are in the proper physiological stage (usually dormant).
- Protecting all cut surfaces from desiccation immediately after completing the grafting operation.
- Providing the grafts with proper care after grafting.

## SCION

According to Hartman and Kester, the scion must be inserted right side up, which means the scion buds should be pointing up and away from the rootstock. There should be at least three buds. The wood should be about 1 year or less (current season's growth). However, figs and olives can be 3-year-old wood. The vegetative buds should be well developed, narrow and pointed as opposed to round and plump, flower buds.

One should use vigorous, not overly succulent, well-matured hardened shoots from the upper part of the tree. These shoots would most likely be from the previous summer. Also, obtain the shoot from the center portion or basal 2/3 of the shoot. Discard the terminal shoots, as they may be too succulent, low in stored carbohydrates.

Collect the scion during the winter when fully dormant. Store the scion slightly moist with a low enough temperature to prevent elongation of buds. Bundle the scion and place in heavy waterproof paper or polyethylene sheets or bags. If the buds are starting to actively grow, the graft will fail.

## ROOTSTOCK

Rootstock can be a seedling, rooted cutting, or layered propagated plant. Where does one buy rootstock otherwise, and what scion goes with what rootstock? Refer to next month's article. According to *The Grafter's Handbook*, the effect of rootstock on the scion under given conditions, controls the size and growth of the tree, time and degree of fruit-bud formation and setting, fruit color, keeping qualities, and resistance to disease.

## CAMBIUM

To be successful the cambium of the scion must make contact with the cambium of the rootstock. For additional demonstrations, refer to *The Grafter's Handbook* describing cambium contact.

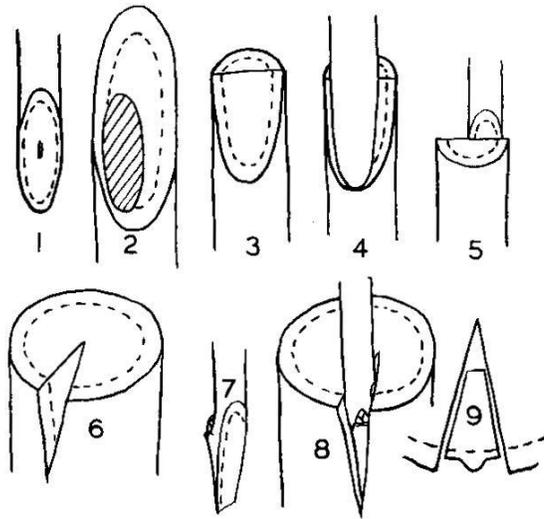


Fig. 4 Examples of cambial contact

1. Scion with thin rind. Cambium (dotted line) close to the outside of the rind. 2. Stock with thick rind. 3. Stock prepared to achieve good apical and basal contact with scion cambium. 4. Scion applied to stock. Note good contact at base and matching of inner rind (cambium) rather than outer rind (bark). 5. Good cambial contact at top of stock. 6. Large stock with thick rind prepared for this scion. 7. Scion with thin rind. 8. Stock and scion fitted. Note parts of stock rind outside the scion. 9. Cross-section. Note alignment of cambium and unmatched barks.

## SUMMARY

This month included a brief introduction to grafting. Next month, tools and other sources will be presented with a discussion of what to graft or what is compatible. There is no exact science to it, but there are general guidelines and surely, experimentation is fun too! For additional information or questions, please contact [kathy@marrack.net](mailto:kathy@marrack.net).

## RESOURCES

*Grafting and Budding Nursery Crop Plants* by North Carolina State Extension  
<https://content.ces.ncsu.edu/grafting-and-budding-nursery-crop-plants>

*Grafting Fruit Trees: The Science and Craft (and a Little Magic)* by Guy K. Ames, National Center for Appropriate Technology (NCAT) Horticulture Specialist  
<https://www.ncat.org/grafting-fruit-trees/>

A webinar on *Budding and Grafting Fruit Trees* by ATTRA's Sustainable Agricultural Program (Appropriate Technology Transfer for Rural Areas developed and managed by NCAT)  
<https://attra.ncat.org/budding-and-grafting-fruit-varieties-for-organic-production/>

*Plant Propagation: Cleft Grafting* by Texas A&M Horticulture  
<https://aggie-horticulture.tamu.edu/propagation/cleftgrafting/cleftgrafting.html>

Module on *Grafting and Budding* by Cornell University Horticulture  
<https://courses.cit.cornell.edu/hort494/mg/specific.grafting/ReqmtFrm.html>

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*Collecting and Storing Graftwood* by Texas A&M University, Extension Service  
<https://aggie-horticulture.tamu.edu/propagation/collect/collect.html>

“Classic reference book and revered encyclopedia (and the only one of its kind) on plant propagation by grafting, and has been favored by orchardists and gardeners since its first publication in 1947”  
Garner, R.J. (2013). *The Grafter’s Handbook*.

“World standard on plant propagation and horticulture for over 50 years”  
Davies, F. T., Geneve, R. L., Wilson, S. B. (2018). *Hartmann and Kester’s Plant Propagation Principles and Practices*.

## **Mark Your Calendars for these Informative & Fun Events:**



The Waller County Master Gardeners would like to invite you to their **Morning Speaker Series**, on March 5 from 9:00 -10:00am. We will have a Grow and Tell presentation. Several of our members will speak about various plants they are having success in their home gardens. This will be an informative way to see what works and what are some of the insider tips on growing these plants.



The Waller County Master Gardener **Lunch & Learn** free educational program is a series of nine informative meetings designed to provide gardening or general landscaping information for homeowners or gardening enthusiasts. We plan and present information on a variety of topics. A free light lunch will be provided. Our goal is to share information on a variety of topics that will assist you in having a more productive vegetable garden, prettier flowers, healthier trees or a better understanding of your landscape ecosystem.

The topic for the month of March is “Beekeeping 101” scheduled for Wednesday, March 11<sup>th</sup>, from 11:30 am -12:30 pm. Guest speaker will be Master Gardener Harvey Newman.

Lunch & Learn is the second Wednesday of each month at the Waller County Extension Office at 846 6<sup>th</sup> Street, Hempstead. Presentations will be thirty to forty-five minutes long. For food planning purposes, please RSVP to 979-826-7651 or email: [www.txmg.org/wallermg](http://www.txmg.org/wallermg) .

## Annual Plant Sale

The 2020 Vegetable and Herb Sale is scheduled for March 7<sup>th</sup>, from 9:00 to 1:00 at the Extension Office located at 846, 6<sup>th</sup> Street, Hempstead, TX.

Heirloom and hybrid tomatoes, peppers of all kind, eggplants, many different varieties of herbs and seeds will be set out for your choosing. Cash, checks, and credit cards will be accepted.

Speakers for the morning will include Mary Karish at 9:00 giving vegetable gardening tips and Henry Flowers at 10:15 talking about growing herbs.



Is your plant giving you an attitude, heard a new trick that resulted in great production, heard some salacious gossip through the grapevine? Then you must share. Please submit your stories, photos, etc. to [marykarish46@yahoo.com](mailto:marykarish46@yahoo.com). Deadline for submission is the 15<sup>th</sup> of each month by 7:00 am. The good news is that you will have all night to work on it!