Trumpet Vine

Knowledge for the Community from Loudoun County Master Gardeners

Fall 2016

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LOUDOUN COUNTY MASTER GARDENER LECTURE SERIES

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Oct. 6, *A year on the Life of a Beekeeper* , by Amanda Rose Newton, Board Certified Entomologist and Extension Master Gardener

Nov. 3, *Festive Container Gardens for the Holidays* , by Stephanie Brock, horticulturalist and floral designer.

For more information, please visit our web site at loudouncountymastergardeners.org

Visit us on Facebook: Master Gardeners of Loudoun County, Virginia.

Fall is for Planting

Fall gardening often brings to mind bed clean-up and leaf raking. But fall is definitely the best season to plant shrubs, trees and all perennials. Plus there are a variety of fall vegetables that can be planted now for a wonderful harvest later in the season – perhaps freshly harvested vegetables for your Thanksgiving table.

What makes fall ideal for planting? In short, the timing gives plants an opportunity to establish the root system and vigor needed to withstand the heat and dryness of the next summer. Fall soils are warmer than the air and any perennial, woody or herbaceous, planted in the fall starts to establish a root system right away. The cooler temperatures of fall are easy on the plants which also benefit from plentiful fall rains. These plants then then can take advantage of late winter and early spring growth. They can get a faster start in the spring and, due to well established roots, have a better survival rate in the summer.

What's the benefit to you, the gardener? Less watering is required, you get to labor in cooler temperatures, and, in the fall garden, it's easier to spot the gaps where plants are needed. Plan to plant this fall.

Photo by VT Dendrology

Photo by Squirrel Nutwork blog

Native trees provide spectacular fall color. The deep red of sourwood, *Oxydendrum arboretum,* far left, and the golden yellow of the mockernut hickory, *Carya tomentosa,* left.

The Loudoun County Extension Master Gardeners are celebrating their 25th anniversary, proudly educating the community and fostering environmental stewardship since 1991.

Love Making a Difference in Your Community? Become a Loudoun County Master Gardener!

Do you love volunteering your time, and enjoy sharing what you know with others? If your answer is *yes*, the Loudoun County Master Gardener 2017 training program wants you! Learn more at our **Informational Open House on September 29, 2016 at 7pm** at the Loudoun County Cooperative Extension Office at 30 Catoctin Circle, SE in Leesburg. For more details about our training program and how to apply, please visit our website: http://loudouncountymastergardeners.org/become-a-master-gardener/.

Loudoun County Master Gardeners, sponsored by the Virginia Cooperative Extension, is a volunteer organization dedicated to working with the community to provide sound horticultural information based on scientific research from Virginia Tech and Virginia State University. No experience is necessary, only enthusiasm! All of our volunteers complete extensive training to become certified Master Gardeners. As a trainee, you'll gain expertise on everything from container gardening to lawn management.

How we serve the community:

- Answer horticulture and environmental questions at our Help Desk office located in the Loudoun County Extension Office and at local community garden clinics and other functions;
- Maintain a Demonstration and Teaching Garden at Ida Lee Park, Leesburg;
- Promote the protection of water quality and the environment by advising on appropriate and safe use of pesticides and fertilizers;
- Instruct neighbors and groups on proper care of lawns, trees, shrubs, flowers, fruits, and vegetables;
- Conduct garden programs for diverse group. To learn more, please visit the Programs section of our website for more details.

Interviews for the 2017 training class start in mid-November 2016. **Please note that a completed application must be submitted by the application deadline, October 31, 2016.** Ready to apply? Click **HERE** to fill out an application online. You may also print out an application and mail it in. Training classes begin in late January 2017, and continue through early April 2017. Classroom training is held Tuesday and Thursday mornings from 9am to 12pm at the Loudoun County Cooperative Extension Office. There are also "hands-on" training clinics that are held off-site. Tuition is $225, which covers all materials for the training course. This is to be paid at the time of acceptance into the program.

We hope to see you at our **Informational Open House on September 29th, 2016 at 7pm.** You will have the opportunity to speak with other Master Gardeners who have been through the program. Please feel free to bring along anyone who you think might be interested. See you then!

Tracy Kay, Loudoun County Extension Master Gardener

Fall and Winter Vegetable Gardening

If your vegetable garden is looking less than stellar right now, you may be thinking it is time to simply clean up and wait until next spring to begin planting again. There is good news though if you still want to have your hands in the dirt. Many vegetables can be planted in mid to late summer for a fall harvest. With just a little planning and planting, it is possible to have fresh vegetables up to and even after the first frosts.

The simplest way to achieve this is through succession planting of warm season annual vegetables. Several smaller plantings of beans, cucumbers or summer squash, spaced several weeks apart, can mean harvesting until the first killing frost. If that was not in your plans this summer, then you probably have empty space right now where your summer squash or cucumbers used to be. Many of those will have succumbed to pests and disease by now, making available valuable real estate in your garden. Why not take advantage of this space by planting some fall vegetables?

When deciding what to plant for a fall harvest, there are several things you will need to know and consider. You should choose quickly maturing varieties of vegetables. Looking at fall seed catalogs that carry varieties particularly suited to this time of year can make this a simple and fun task. You must also know the average date of the first killing frost in your area. Here in Loudoun County that date ranges from October 19-29. Once you have that date and the days to harvest for your vegetable varieties, you can calculate the time to plant, keeping in mind that growth slows down due to cooler weather and shorter days. See Tech Pub 426-334 for more detailed information on this calculation. https://pubs.ext.vt.edu/426/426-334/426-334_pdf.pdf.

The first step you will need to take is to remove the warm season annuals like peppers, beans and tomatoes, from your garden. This plant material can be added to the compost pile if it is disease and pest free. If not, it should be bagged and placed in the trash to avoid harboring any overwintering forms of the diseases or insects. Next, you'll need to prepare your soil by replacing the nutrients that were used up by the previous crops. A light layer of compost or a small amount of a complete fertilizer can be added to take care of this.

Turnips in the fall 2015 garden

In the demonstration garden, the carrot and onion bed will be treated in this manner, and turnip, radish and beet seeds will be planted. The spring lettuce and radish bed will get a slightly different treatment though. In mid-summer, the empty bed was broadcast seeded with quick growing buckwheat. This cover crop matures quickly and can then be cut down and incorporated into the soil. It quickly decomposes, adding valuable nutrients and organic matter to the soil. After two weeks, fall greens can be planted. We had good success last year with Seven Top turnips, grown specifically for their greens rather than the turnip which remains small and woody, and Mizuna mustard. We were able to continually harvest until the demonstration garden closed for the season. We simply left the plants in place over the winter, acting as a cover crop. The mustard was winter killed, but the turnips were still growing in the spring. Both were incorporated into the soil and allowed to decompose. This year, we have treated the bed in the same manner, and it is ready to be planted with these greens again.

Your seeds and transplants will benefit from being planted into moist soil, following a rain or thorough watering the day before. Plant seeds twice as deep as you would in the spring and cover them lightly with

Cabbage with row cover

straw to keep the soil cool and moist. Late summer plantings have fewer pest problems in general, since pest activity has decreased, but care must still be taken. In the demonstration garden, for example, the late summer cabbage plants are under row cover, as cabbage worms can still target them.

After late summer planting is complete, your attention can be turned to any perennial vegetables you may have. Strawberries can be weeded and runner plants transplanted, followed by a topdressing of compost and a light layer of mulch. Dead asparagus and rhubarb stalks can be removed and the area covered with compost and mulch as well. This will reduce the chance of heaving that results from the soil freezing and thawing over the winter.

Another important step in fall gardening is preparing the soil for the winter. Now is the perfect time to add compost to the soil or even shredded leaves or dried grass clippings from your yard. Adding this organic matter now will give it plenty of time to decompose before spring planting time.

You may also decide to plant a cover crop for winter garden protection. Cover crops reduce soil erosion, add organic matter when they are incorporated in the spring, improve soil structure and add nutrients. Cover crops can be planted as early as August 1, but no later than November 1. They need adequate time to grow before the first hard frost. Some cover crops are winter killed (oats and forage radish) and are easily incorporated in the spring. Others, like winter rye, hairy vetch and crimson clover, require a lighter touch when seeding or spring incorporation can be a challenge. Cover cropping can sometimes cause delays in spring planting because the material generally needs at least two to three weeks to break down in the soil.

Crimson Clover

In the demonstration garden, we use a variety of cover crops including crimson clover, hairy vetch and field peas, which are all nitrogen fixers, as well as oats, forage radish and winter rye. This year, we experimented with planting tomatoes and peppers directly into a killed mixture of hairy vetch and winter rye. This was a challenge though, because cutting and consequently killing the dense growth of plant material that resulted required careful timing and lots of effort.

The last fall/winter garden chore is to clean and store your tools. Garden hoses should be drained and stored where they will not freeze. Shovels, hoes and garden rakes should be cleaned of dirt and debris, sharpened with a file if necessary and handles can be sanded and oiled. Pruners should be sharpened, sterilized and oiled. Gas powered equipment should have the gas drained and the oil changed. It is also a good time to have the lawnmower blade sharpened and any repairs made. Finally, clean up any pots and seed starting equipment in a 5% bleach solution.

When your fall and winter garden chores are complete, you will be able to enjoy a relaxing winter knowing that everything is in place for the following year. Enjoy perusing your seed catalogs and dreaming of another year's bounty from the garden!

Lorrie Greenman, ***Loudoun County Extension Master Gardener***

All photos by Lorrie

A World of Summer Squash

We are coming to the end of another gardening year. Maybe you have been overrun by zucchini in your own garden and can't think of another way to fix them. Or maybe someone has given you a summer squash that you were unfamiliar with and you are already planning to grow it in your garden next year. Or maybe you are tired of the same green variety and the same yellow variety of summer squash in the grocery stores. The farm markets, fortunately, do offer a greater variety of summer squash but even so there is still a whole other world of this summer vegetable that is worth investigating, growing and eating.

GROWING CULTURE

Summer squash may be started inside three to four weeks before the last frost date. Before planting outside, the seedlings will have to be hardened off which is a term to describe getting the seedlings acclimated to outside temperatures. Or seeds can be sown directly in the ground once all danger of frost is past and the soil has warmed to about 70 degrees. Squash plants are heavy feeders so the soil should have an abundance of organic matter and add compost when planting. Once planted, if the seedlings have pale leaves, use fish emulsion or liquid seeweed. Avoid a fertilizer that is high in nitrogen because all of the plant's energy will go into growth of the plant and squash yield will be diminished. Squash also do best if they are watered regularly. Once the squash seedlings have been transplanted or once the seeds have germinated after direct seeding, cover the plants with floating row cover until the plants start to bloom. One of the pests of squash is the squash bug and by using the row cover, the young plants have time to get established. Once the plants are blooming, the floating row cover will have to be removed or there will be no pollination. Another pest of squash plants is the squash vine borer. If your plant is perfectly healthy one day and the next day, it looks all wilted and ready to collapse, it probably has been the victim of the borer. The moth lays her eggs on the squash in early summer. When the eggs hatch, the larvae bore into the stem of the squash where they feed. Some people have had success in slitting the stem, extracting the larvae and then mounding the soil up around the stem. There are several squash varieties that are more resistant to the squash bug and squash vine borer.

The listings below highlight some, but by no means all, of the varieties of summer squash.

ZUCCHINI

Cocozelle - this is a very reliable Italian heirloom. It is dark green with lighter green stripes. It has white flesh with a slightly green cast and is best picked when 8"-10" long.

Costata Romanesca - this is also an Italian heirloom. It is similar to the Cocozelle in that it has alternating dark and lighter green stripes. The squash can grow to 18" but it is best to pick them at 10" - 12". The plants of this variety grow to be larger than other summer squash so allow plenty of space in your garden.

Black Beauty - this is a dark green zucchini and as the name implies, when mature, it looks black in color. The plant has an open growth structure so the squash is easy to pick. It has white flesh with a small seed cavity and is known to freeze well.

Grey or Tender-Grey Zucchini - this squash has a grey-green color and hence its name. It has a long period of harvest and can be tender beyond 12". It also has a small seed cavity.

Raven - this zucchini can be planted in small spaces and has been grown in containers. As with many varieties, the ideal size to pick is 6"-8". This variety is known to contain the antioxidant, leutein, which helps protect the eyes from harmful UV rays.

Grey Zucchini Photo by Normalee Martin

Magda - this squash is squat-like in structure. It has a pale green skin with a dense, nutty flesh. It is wonderful used in stir fries or for grilling.

Zephyr - this is a hybrid squash between a delicata and yellow acorn squash and a yellow crookneck squash. It has a long cylindrical yellow body that tapers to the bottom where it is pale to dark green.

Gourmet Gold zucchini - these plants are quite vigorous and have an open structure so picking is easy and the squash are easily visible. They are orange yellow in color.

Bossa Nova - this is an award winning zucchini. The skin is a mottled dark and light green. The plant is compact, produces early and continues in production several weeks longer than other squash varieties. Many feel that the sweet, mild taste of this squash is an improvement over some of the other summer squash.

As you can see not all squash classified as zucchini are green. And not all are long and tapered as pointed out in the three varieties listed below.

ROUND ZUCCHINI

Eight Ball Zucchini - as the name says, this squash is round with the same mild flavor as other zucchini. It is good for stuffing.

Ronde de Nice - this is a green, round French heirloom variety. Harvest is best at 3 1/2" - 4". This squash is also good for stuffing and can be planted in small gardens.

Piccolo - this is a beautiful dark and light green striped round or oblong squash. It is best to pick them when they are about the size of a tennis ball. Tender and delicious.

YELLOW SUMMER SQUASH

There are several varieties of yellow summer squash and two of the better know are:

Straightneck - this is probably the variety that you see in your grocery store. It is lemon yellow and is slightly larger at the bottom. It is best picked at about 6" and the plant is quite vigorous.

Crookneck - as the name implies, the neck of this squash is crooked. There are really two kinds of this squash that have the same crooked neck. There is the old time variety where the skin gets warty at maturity and it is at this stage that it has a superb, intense nutty flavor. Then there is the variety called Early Golden Summer Crookneck. The skin stays smooth on this variety and it does not have the same intense flavor.

Crookneck Photo by Lorrie Greenman

SCALLOP OR PATTY PAN SQUASH

Flying Saucer Photo by Lorrie Greenman

As the name indicates these squash are rounded with a scalloped edge - think of a spinning toy. They come in a variety of colors - white with a slight green cast, green, yellow and 2 tone. Any of the squash listed below can be boiled, fried, used in stir fries or they are wonderful in squash fritters.

Flying Saucer - this is a two tone green and yellow squash and as the temperatures become warmer, the green color becomes more prominent. The flesh is sweet, dense and nutty in flavor.

Sunburst - an orange-gold scallop squash

Peter Pan - an award winning squash; light green in color that is meatier than many other scallop squash

Benning's Green Tint - very light, almost white squash similar to the Peter Pan

White Bush - this is an old heirloom variety that our grandparents used to raise. It is a variety that was grown by the Native Americans.

Tromboncino Photo by Normalee Martin

ODDITY SQUASH

Tromboncino - This is an Italian heirloom squash that is currently being grown in the Master Gardeners' Demonstration garden. As you can see it has a very long neck and a bulbous end and if left on the vine long enough it almost gets to the color of a butternut squash. If you are dealing with small spaces or just want to grow a squash on a trellis, this is the one. As seen in the photo, the squash can get to be quite sizeable. This squash also seems to be more resistant to the squash bugs and squash vine borer.

SQUASH SUITABLE FOR CONTAINERS

Except where noted, all of the above mentioned squash are not suitable for containers because they need 3'-4' of space in your garden for maximum plant health and growth. As with any variety of summer squash, keep in mind flavor, vine size and disease resistance.

Raven - listed under "zucchini"

Bush Baby - light and dark green striped zucchini; ideal size for picking is about 4"; compact plants; high yield

Patio Star - compact plant that produces over a long season and produces early

Starship - shiny, all green with slight scallops; semi bush plants

I hope this article has expanded the possibilities for you when you are planning for the next gardening season. If you still have zucchini or other squash suitable for stuffing in your garden and some have gotten to be huge, the following is a recipe that is delicious. Or if you do not have large squash now, this recipe may entice you to let some of them get big.

Stuffed Squash with Avgolemono Sauce

6-8 plump squash or enough to equal about 3 pounds

1 large onion, chopped (1 cup); 3 tbsp. butter or margarine; 1 pound ground lamb, ground round, or ground turkey; 1/2 cup uncooked long-grain rice; 1/3 cup chopped parsley; salt and pepper as desired; lemon sauce (recipe follows).

Wash squash; trim ends; cut in half and scoop out pulp, leaving a 1/4 - inch shell. Chop and reserve the pulp. Sauté onion in the butter in a large pan until tender. Add the preferred meat, stirring occasionally, until no pink shows. Stir in the rice, parsley, salt and pepper and the reserved pulp. Bring to a boil; lower heat and simmer 10 minutes, stirring occasionally.

Spoon the mixture into the scooped out shells, mounding slightly. Place in greased, shallow baking dish just large enough to hold squash. Cover dish with foil and bake at 350 degrees for 45 minutes or until the squash is tender. When the squash has finished baking, serve each shell topped with the Avgolemono Sauce.

Avgolemono Sauce

(This sauce recipe is from women of the Greek Orthodox Cathedral of the Annunciation, Atlanta)
Beat 2 eggs with 1 tbsp. water and 1 tbsp. cornstarch in a small bowl with electric mixer until frothy. Add 1 cup boiling chicken broth and 1/3 cup lemon juice slowly to egg mixture, while continuing to beat, until mixture is smooth. Pour sauce into small saucepan; warm over low heat, stirring constantly, until sauce thickens slightly and coats a spoon. Makes about 1 3/4 cups.

Kristin Westfall, Loudoun County Extension Master Gardener

Preserving the Abundance

It has been quite a year for the garden. Sometimes we feel like we're back in Tennessee with the humidity and sometimes in Texas with the heat. In Texas I could literally hear the okra grow. It has been much like that this year. Also the sweetest cantaloupes are coming from the garden. With such unpredictability, one has to be prepared to save the hard earned crops. So now you must be feeling the pressure to preserve as the crops roll in and accumulate on your counter.

Canning Equipment:

You have to consider making a commitment to purchase canning equipment and what sizes of pots you might have. When making pickles, I have to have two dishpans with ice on hand, as well as my water bath canner, a pot for warming the lids, and a deep kettle for making the pickling solution to which the pickles are added. A flashback to a large kettle of apple butter simmering over an open fire popped into my mind. Although it is very important to follow preserving guides carefully, it is rare that any food will be contaminated. Large food producers have many more problems than the home canner.

Large mouthed jars and lids Photo by D. Wilson

There are the jars, lids (only used once) and rings to purchase. Personally, I prefer the large mouth jars for most of my preserved food. I use smaller jars for gifts or jellies. Handling hot jars requires a jar lifter, and funnels are indispensible. There are useful tools to acquire, like a magnetic lid lifter. There are inexpensive "kits" from the major jar producer--which are readily available. These kits sometimes include a canning book to get you started.

An Additional Note from Master Gardener Eileen Swicker:
We make pickles and jam in quantity in our house. I prefer to process the jars for lasting shelf life. In past years, for me, processing the jars was quite a task. Enter the Ball Fresh TECH Electric Water Bath Canner and Multi-Cooker, which makes processing pickles and jam far more convenient. It has a compact form for storage with the separate base heating element stored inside the pot. What makes it really convenient is setting it up next to the sink, filling with the sink sprayer, uncorking the tap/inside drain spout, so that when processing is done, you can flip the spigot open and let the contents of the pot drain into the sink. It will process eight jars at a time, up to quart size, and has a "processing" setting to reach and maintain the proper temperature. A bonus is that it has many other functions one of which is heating and serving spiced apple cider, a great asset for the coming fall. It comes with a user manual, recipes for pickles and many other things that can be made in the "multifunction" side of the pot.

Resources:

I have my original 1978 edition of *Keep It Garden Fresh* by *Consumer Guide* that continues to be a mainstay. There are tempting preserving recipes in many of my books also. However, in today's world of internet searches, one can and should consult many sources. You may find an interesting recipe on someone's blog site, but need reinforcement from dependable sources. High on the recommended list: *So Easy to Preserve* cookbook and instructional videos, http://setp.uga.edu; National Center for Food Preservation, http://nchfp.uga.edu/index.html; Rodale's Consumer Guide http://www.rodalesorganiclife.com/food/essential-canning-tools; and last, but not least, consult the

excellent information at the Virginia Cooperative Extension publications, Pressure Canning VCE, PUBLICATION 348-585 & Boiling Water Bath VCE, PUBLICATION 348-594 http://www.ext.vt.edu/custom-search.php?vt_search_type=cse&cx=013920026716507297540%3Aed1zydnh49c&q=canning+and+preserving&sa.x=0&sa.y=0&cof=FORID:11&ie=UTF-8&sa=Search. The Virginia publications are easy to follow, show detailed drawings, and provide invaluable tables for timing.

Ingredients and Preparation:

As I finish this article my canning season is actually running down. The heat of the summer—and a deer invasion—have slowed my harvest. Freezing prepared okra and making hot pepper jelly as well as tomato jam are my current projects. I invested in a vacuum sealer some time ago and find it very useful. For water laden shredded zucchini, it doesn't work so well but you can make an outer layer over a regular freezer bag for good results. For pre-frozen beans and okra, it is perfect. Freezer burn is always a possibility, so keep good account of dates and "use by" times.

By necessity you will be purchasing canning salt (pure and clear), vinegar and probably more sugar than you even do for the holidays. Pectin may be required for jams and jellies. In my earlier article I mentioned using fresh dill from the garden. By the time my cucumbers were ready for dill pickles, my dill had dried and was useless. Fortunately, fellow Master Gardeners came through for me. Preserving as a Master Gardener means you have good help available.

Preparing for canning Photo by D. Wilson

Preparing for the canning day means clean surfaces, clean utensils, lots of clean dish towels—are you seeing a theme here? The jars must be clean, sterile and hot. I either use the sterilizing setting on the dishwasher or boil the jars right before filling. As a beginning canner, it is probably best to start with hot pack methods, as cool pack requires careful technique. As the time draws near to fill the jars, I put the lids in a handy little rack and put in simmering hot water. These have been checked for any nicks in the rubber ring to ensure a good seal. It is easier to discard a less than perfect lid than waste a precious jar of preserves.

Recipes are everywhere. Choose one that sounds like the result you want and your family will eat. Please taste the mixture before you preserve it; most can be changed to fit your taste. Anyone with children young or older, will find it fun to set up an assembly line of duties. Young ones can help before the hot water is involved, whether it is sorting fruit, measuring ingredients or even getting out jars and unscrewing lids. The sense that one has contributed to the food on the table is invaluable, particularly in our world of plastic (packages and cards).

Helpful Hints:

There are different methods for keeping pickles crisp. Always use the freshest ingredients you can acquire. Some recipes call for salted ice water, some use lime, some include using a leaf with tannin on top (grape leaves, cherry leaves). I'm trying the latter this year and will report the result. The length of time they are in the hot pickling liquid and the water bath are also a factor. It is best to pick your cucumbers and beans and preserve within two days. Green tomatoes are more forgiving and may be accumulated over a few days. Use the best fruit or vegetable because insect damage can actually insert bacteria into the fruit.

If making tomato sauce or any long cooking fruit, less than perfect fruit is not such a problem as the heat and length of cooking time will be sufficient to kill any bacteria. Do read your recipe carefully when using vegetables that have a low acid content. Even some tomato recipes are preserved using extra lemon or vinegar, which is added before the jar is sealed. Acid is your friend for canning food. It is important to remember that the addition of meat or anything that raises the PH (lowers the acidity), will require pressure canning to ensure bacteria will be killed.

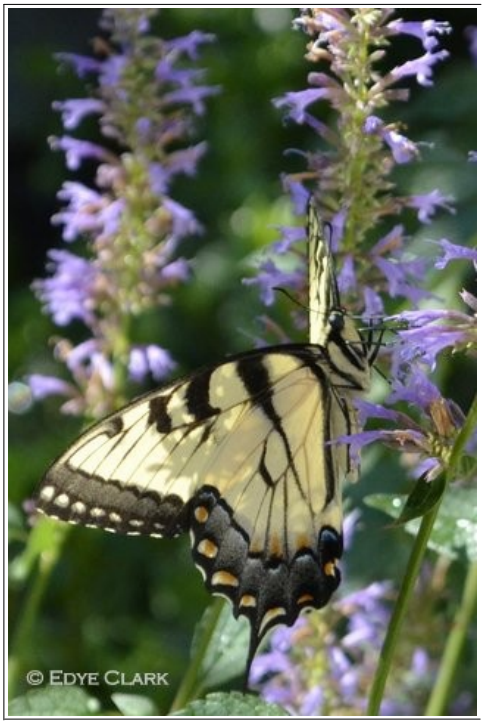
The Beginning?

Hopefully, you will venture into the canning and preserving world. Although I have been canning and preserving for most of my adult life; I find new recipes and challenges all the time. The adventures in planning the garden and exploring different fruits and vegetables are fascinating. I'm lucky to have adult children and a husband, who are frequently ready to lend a hand and are very appreciative of the food created. This is gratifying in your "old age". I remember well how much my grandmother appreciated our praise and delight years ago. It becomes a gift of love.

Deborah Wilson, Loudoun County Extension Master Gardener

Planning and Planting For Pollinators

Pollinating insects—bees and butterflies in particular—have been much in the news lately. We read stories about the decline in the elegant monarch butterfly population, who's orange and black beauty we enjoy as they journey through our area. Colony collapse disorder in honey bees is being reported widely and spurring a proliferation of studies. Continuing development of farmland and previously undisturbed tracts into housing, office space, and ever-increasing pavement is putting untold strains on our native bees and other pollinators.



Who doesn't love to see butterflies dancing across the landscape, providing color and graceful movement in our world? We enjoy these winged visitors to our gardens, but the pleasure of the experience is only part of the story. According to a study by Cornell University in 2010, pollinating insects (including also wasps, moths, flies, beetles, and ants) contribute almost $29 billion in economic value to United States agriculture every year. So the continued support and safe-keeping of pollinators is in the best interest of all.

The familiar "honey bee" (*Apis mellifera*), the only bees who produce sufficient honey to share with their human friends, is not native to the U.S. They were introduced by European settlers who brought hives across in their ships. Honey bees escaped domestication, and are now an established and valuable pollinator for our food supply. In addition, there are nearly 4,000 species of native bees of varying shapes and sizes that are absolutely critical to our crops and flowering plants.

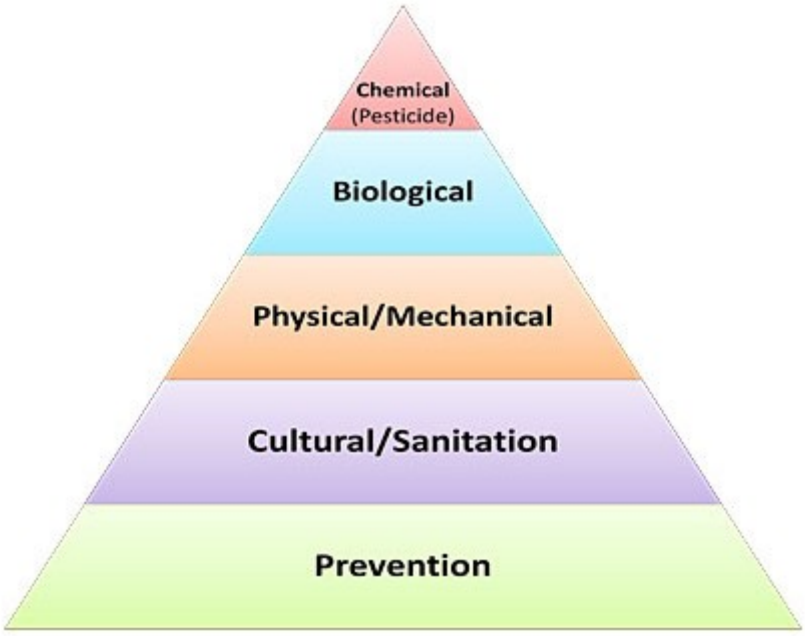
So, how do we help? Pollinators need two critical supplies: pollen and nectar. Some flowering plants provide an abundance of one or the other; some plants provide both. Quality varies from one plant to the next and supply over the blooming season fluctuates. When planning and planting your home flower garden, it's important to keep in mind the need for good sources of energy foods for our little buddies.

Many gardeners know that the fall is an excellent time of year to get new plants established. With air temperatures cooling and demands for supplemental watering beginning to abate, the still-warm soils encourage root growth before the ground freezes. (Also a great time to find end of season sales!) We can design new beds, re-design existing ones, and/or simply add to current plantings. Keeping our pollinators in the front of our minds during that planning process, here are some things to consider:

- **Diversity is key.** Different pollinators have different needs, so planting a variety of flowering plants is helpful. Just as with people, there are all kinds of pollinating insects: some are small, some are bulky; some are smooth, some hairy; some have long tongues to sip nectar out of tubular flowers, some need a shallow source. Change it up!
- **Succession is interesting.** Good garden design considers the sequencing of bloom times ("succession"), so that something of interest is in flower at all times throughout the growing season. With the focus on pollinators, think of your flowers as serving as the cafeteria for our diminutive but distinguished friends.

- **Native plants are "natives" for a reason.** Plants that have evolved in an area serve a crucial purpose: they are habitat and food sources to the insects that have evolved in that same area. Native plants are often less demanding in the landscape, once established and when sited properly (consider their optimum sun and water requirements). *Non-invasive* exotics can have a place in the food-chain as well, but find more space for some of our local lovelies. The more the merrier…

- *Follow Integrated Pest Management (IPM) in your garden. Always.* The following triangle is a graphic version of IPM and the steps to take, starting at the bottom and working your way up. Especially in gardens where you are encouraging pollinators to visit, take all measures possible to avoid harming your visitors. Be a good host!



Credit: University of NV Cooperative Extension

Cooperative Extension at the University of Nevada has an excellent explanation of IPM:http://www.unce.unr.edu/programs/sites/ipm/ - take time to read through it. And take advantage of our Loudoun County Extension Master Gardener Help Desk to assist and guide you. All have been trained to use IPM and can advise you.

These are the best resources I have found on the subject, and use most frequently in design practice:

- *Selecting Plants For Pollinators* (Ecoregional Planting Guides) – Pollinator Partnership. http://www.pollinator.org/guides.htm This resource provides a wealth of information.

- *Native Plants for Northern Virginia Guide* - Plant NoVA Natives. http://nebula.wsimg.com/e4e149a621e7fe59916869e61a84dbce?AccessKeyId=3787409C771EB71DC1CC&disposition=0&alloworigin=1

- *Native Plants for Conservation, Restoration, and Landscaping* - Virginia Dept. of Conservation and Recreation. http://www.dcr.virginia.gov/natural-heritage/nativeplants

- *Bee Basics: An Introduction to Our Native Bees* - USDA. *A fascinating read!* http://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5306468.pdf

Edye Clark, Loudoun Extension Master Gardener

Fall Enhancements to Your Pollinator Garden

This is the best season to get new plants for your pollinator garden the old fashioned way – get them for free from another gardener. Fall is a good time to assess what you have in abundance and perhaps find someone to swap plants with. Many gardeners faced with too many of a species will gladly give away plants if you will do the digging. Another, slower option is to gather seeds from other gardens. Remember most native perennials take a couple growing seasons to mature. Therefore I like to get a couple mature plants and enhance that planting with a handful of seeds that will mature in a couple seasons.

From my experience with native plant beds, here are some plants that you should be able to get for free digging:

Photo by Carol Ivory

Anise Hyssop, *Agastache foeniculum,* is a wonderful garden plant. All parts of the plant are licorice scented and just brushing against it creates a cloud of fragrance. The flowers are bee, butterfly and hummingbird magnets. The flowers are also edible and can be crumbled in salads. Hyssop reseeds freely and many gardens can spare a few volunteers and a handful of seeds to a neighbor. These plants require full sun and grow 3-5 feet.

Photo by Carol Ivory

Mountain mint *Pycnanthemum muticum* or short toothed mountain mint just buzzes with bees, wasps, butterflies and moths. Can you count the pollinators in this photo? This mint is great for slopes and difficult spots. It spreads by rhizomes but is not overly aggressive. In my garden this shares space with wild bergamont or *Monarda fistulosa*. Earlier in the summer the monarda is dominant, then, in late summer the mountain mint takes over. Any gardener with a patch of mountain mint can spare a clump. This plant is really deer resistant! Plus you can rub it on your skin as a mosquito repellant. Mountain mint grows 2-3 feet in height.

Photo by W. S. Justice

New York Ironweed *Vernonia novaborascensis,* grows from 3 feet in dry soils to 9 feet in moist soil. To keep it shorter, prune it to the ground when it achieves 2 feet. It will still bloom on time in the late summer. Consider planting it with goldenrod or black-eyed susans. It is said that ironweed got its name because it is so difficult to dig up. Its deep taproot makes it difficult to dig up intact. Find younger, smaller plants to transplant, pot up these plants and give them TLC by placing them in the shade and watering frequently. These plants also grow freely from seed.

Any seed that is gathered must be planted in late fall. All native plant seeds need to experience the freezing and thawing of the winter to germinate in the spring. Clear a spot down to bare soil and press the seeds into the soil but do not cover them.

Enjoy your new free plants.

Carol Ivory, Loudoun County Extension Master Gardener

Pest Spotlight

Green Up Your Garden: DIY Chemical-Free Garden Bug Spray

We all want to be better about our environmental impact here in Loudoun County and beyond. For many, one of the "Final frontiers" for us letting go of conventional chemical-based products is the garden. Pests rampage through our gardens from March to October here in Virginia, and without the proper tools, your vegetables may be a casualty in the pest wars.

Raspberry Aphids (Amphorophora agathonica) Stephen Ausmus, USDA. 2007.

If you have been feeling guilty about chemicals in your garden, here is a handy break down of the common environmentally friendly products available as well as a quick recipe to make your own garden spray. Remember, as with any pesticide, dose amount, timing, and the target pest are all important to consider before use. If unsure of this information, contact your peers at the Virginia Cooperative Extension Office for more details.

A Quick Chemistry Lesson: What Exactly is in Common Labeled Environmentally-Friendly Products

- **Carbamates:** Carbyrl, or Sevin, is probably the best known Carbamate on the market. Pesticides of this type function by inhibiting an important enzyme, acetylcholinesterase, which acts in the break down and release of important neurotransmitters. Though credited with having a fairly low residual rate and low impact, it causes neurological disruption (death) in a large variety of insects, including beneficial insects.
- *Saccharopolyspora spinosa*: You know this product as Spinosad, a common bacteria-based organic chemical packaged under a variety of names such as Monterey Garden Spray that is often labeled as a bioinsecticide. Like Carbaryl, it is also works by disrupting natural neurological processes but is derived entirely from chemicals found in *S. spinsoa*, which is a bacterium that occurs in sugarcane. It is natural, has a low residual rate, and is safe for most mammals. However, it is fairly broad spectrum and most soft-bodied larvae and adult insects are effected by its use.
- *Bacillus thuringiensis*: This soil-dwelling bacteria has been commonly used both in large commercial and small home gardens for decades. It mainly targets soft-bodied larvae of moths, butterflies, beetles, and flies by disrupting the membranes of their midgut leaving it dysfunctional. *Bt* based products are low residual and low toxicity. Though there have been concerns over impact on non-target species, current research has not found the amounts high enough to adversely affect bees and butterflies.
- **Pyrethrin**: Another classic chemical (we are talking thousands of years of use) used in many home garden insecticides, Pyrethrin-based chemicals are derived from the flower, *Chrysanthemum cineraillfolium*. They also interfere at the nervous system level, causing paralysis. In recent years, it has been noted through toxicology testing that it can have negative effects on cats, bees, and aquatic species.
- **Neem Oil**: If you made the homemade insect repellent last issue, you may already be familiar with Neem Oil. Not only does this work as a repellent, it also disrupts important hormone processes within the nervous system if consumed by insects feeding on sprayed leaves. Though it will not instantly paralyze like Pyrethrins, it will cause them to have a reduction in functionality, inhibit reproduction, and ability to fly off to more of your plants. It is commonly mixed with other pesticides when sold on the market. *Azadirachtin*, which is derived from Neem plants, is known to be environmentally safe and effective against many soft bodies insects, especially aphids.

Why buy when you can make? Make use of the Neem Oil you still have lingering from making your repellent with the simple recipe below:

The Recipe:

- Materials
  Choose a spray bottle size of your liking. I prefer to use smaller containers, but you can easily do a bigger batch if desired. This recipe is for a **1 quart 0.5% dilution spray**.
- Ingredients
  - 1 tsp neem oil
  - 1/3 tsp dishwashing detergent
  - 1-quart warm water

Neem Fruit Photo by Palagri, Wikicommons.org

- Blend!
  - Mix the warm water and soap
  - Constantly stir as you add in oil
  - Give it a few good shakes (you will need to shake often while applying, too)

- Tips
  -Use good quality cold-pressed Neem Oil, NEVER an extract as it has a higher concentration of *Azadirachtin*. Cold pressed varieties ensure it was not heated, which would denature *Azadirachtin.*
  - Instead of dishwashing detergent, you can also use an insecticidal soap for enhanced effectiveness.
  - Use within 8 hours for best results, as Neem breaks down when mixed with other substances.

- Directions
  - Lightly mist the leaves and spray the soil around the plant once every few weeks when infestation not present as a preventative
  - Drench leaves and soil around plant during infestation
  - Reapply during hot weather and after rain storms
  - Increase dilution amounts for less susceptible pests
  - See what works best for you- different amounts and different times of day vary by pest, season, and your own yard/preference!

Resources:
http://www.banyanbotanicals.com/neem-oil/
Where to buy and information about Neem

References:

Simon J. Yu. *The Toxicology and Biochemistry of Insecticides*. Boca Raton, Fl: CRC Press, 2015. 2nd Edition.

Amanda Rose Newton, BCE. Entomologist and Master Gardener

A New Crop Comes to Loudoun County

Two hops

Cultivated hops, *Humulus lupulus*, gives beer its aroma, flavor, and preserves the beer through its anti-bacterial properties. A "hop" is a green cone around the female flower of the hop plant. Inside the hops are golden grains that form a sticky greenish yellow to organ-yellow powder. The hops plant is a perennial climbing bine (a vine-like stem with tiny hooks, not tendrils) in the hemp family, Cannabinaceae.

Hop plant growing on a steel trellis

Hops is an herb that has been used medicinally for thousands of years. Pliny the Elder, a Roman naturalist, author and natural philosopher mentioned hops as a kitchen herb 2,000 years ago. It has been recorded that George III and Abraham Lincoln both used hop-stuffed pillows to aid with sleep.

Herbalists also used hops in a lot of remedies. It is used as a painkiller, a fever cure, an expectorant, and a tonic or tea for insomnia, among others on a long list of remedies.

Hops were first documented as used in beer in the 9th century. The use of hops as a preservative allowed merchants and inn keepers to keep beer for longer periods. Before the use of hops, brewers used 'gruit' a combination of dandelion, burdock root, and, horehound among other herbs as a preservative.

Hops: A Brief History

Hops were brought to North America in 1629 by the Massachusetts Bay Company, and by 1648 had spread to Virginia. By 1800 hops had become an important field crop and hop growing progressively moved north to New York and westward to Washington and Oregon.

New York was a more conducive latitude (above 49°) than Virginia for growing hops. By 1849, New York had attained national leadership in the production of hops, and by 1855 the region was raising over 3 million pounds annually. And although hops from Germany and England were still in demand, the Otsego County NY hop was considered the best in America.

At that time, almost every farm had a few acres in hops, which would yield about a 1,000 pounds per acre. The face of the landscape changed in these times with the acres given to growing hops and the various styles of barns and kilns used for storage and drying.

During this 'Golden Age' of the hop industry, market prices soared and many farmers plowed up every available piece of land. While they did depend on income from other crops, they planned on big returns from their hop harvests. Unfortunately, West Coast farmers had the same idea. They were not only achieving greater yields, they were utilizing mechanized picking and thus manipulated the market, and by 1882 the price had peaked at $1.25 a pound and then plunged the following year. The price fluctuations made profits uncertain and local growers began to cut the size of their hopyards in favor of dairy, raising corn, potatoes and grain.

In 1909 local growers' hopyards were hit with downy mildew which has been referred to as 'blight'. Efforts to defeat the disease were futile and after 2 years the family farmer was nearly out of business. In 1914 an attack of hop aphids added to their further demise. The final blow came as Prohibition almost eliminated the need for hops.

One of the first cultivators of hops in Yakima Valley, Washington, was Charles Carpenter in 1872. He got his first cuttings from his father, a settler in Constable, New York. By 1890, Yakima Valley was the most important producer of hops in Washington state. As in every other hop growing region, the years of Prohibition and the Depression, 1920 to 1940, threatened the existence of planters in Washington State. Yet thanks to their creativity they converted to seedless hops and improved the quality of hop picking. This created the good reputation of 'Yakima Hops'. These hops were exported worldwide, particularly from 1939 to 1950. The Yakima Valley has one notable advantage in that it is the only region in the world that can plant cuttings in the spring and get a full harvest in the autumn.

Although most commercial hops are grown in Washington, Oregon and Idaho, smaller hopyards have been established and are catering to regional and local breweries that favor organics, local ingredients and undried hops.

"If the smaller growers can cater to a niche market and benefit from a premium price for their efforts, while avoiding transportation costs to processing facilities in the Pacific Northwest, it allows them a much improved opportunity to thrive," Ann George of the Hop Growers of America said. She calls the emergence of microbreweries and home brewing a game changer. "Although this segment of the brewing industry contributes a fairly small portion of the annual beer volume, they use substantially more hops, which has resulted in a dramatic impact on the U.S. hop market."

Hops Come to Loudoun County

In November of 2014, Governor Terry McAuliffe of Virginia announced that Loudoun County's "Black Hops Farm, LLC, will initially convert 15 acres of former pasture into a hopyard and build a new processing facility, thus becoming the largest hopyard in Virginia and the Mid-Atlantic's first commercial scale hops production and processing facility."

Black Hops hopyard-before (left) and after (right) harvest, 2016

Governor McAuliffe went on to say "This is a significant win for the Commonwealth as it fills a critical need for current and future craft brewers……. will invest about $1 million, create 11 new jobs in Loudoun County…"

The organic hopyards at Black Hops Farm and the Lucketts Mill & HopWorks processing facility are managed by Dylan Kryzwonski and Solomon Rose, co-owners of Organarchy Hops. With lots of help, they planted fifty-three hundred hop plants on about six acres in June of 2015. Organic standards do not permit the use of treated wood for trellises, so the mature bines are suspended by a steel trellis system.

The small amount of hops grown in Virginia in the last few years were mostly picked by hand, a very tedious process. HopWorks imported a Wolf Harvester from Poland that can strip a half acre in an hour. HopWorks also have an oil fueled dryer, freezers, a pelletizer and packaging equipment. Hops not sold immediately are compressed into bales and stored in freezers.

Organarchy Hops Facility, Lucketts

Krzywonski and Rose teach other farmers in Virginia how to grow hops and offer their services in an effort to meet the demands of the facility.

One hundred years ago Loudoun County was an agricultural county based mainly on dairy farming. Now Loudoun County has close to fifty wineries and vineyards. There are at least twenty microbreweries and now they will have their own locally sourced hops! A return to agriculture that meets the demands of its population. Things have gone full circle as Loudoun County embraces local restaurants and bars supplied by local farms, breweries and distilleries. A farmer might be able to make a living with as little as ten acres of land!

Look for 'Growing Hops in Your Backyard' in the next issue of the *Trumpet Vine*.

Normalee Martin, Loudoun County Extension Master Gardener

All photos by Normalee Martin

Finding the Best Locally Native Plants for Birds

Bring more birds to your yard with key native plants. The Audubon Society has developed a database that you can search based on your zip code. So no guessing if the plant will grow in your area. Check it out. http://www.audubon.org/native-plants.

There is a New Shrub in Town: The Tea Plant

From Seed to Plant, A Journey: Year Two

Not many have contemplated the journey of how the green, brown, or black tea leaves get to your kitchen table. Last year, my journey into the world of tea began with seeds originating from Korea to plants being placed in my Loudoun County garden. The year one experience ended with seeds germinating over 150 plants that were put in the ground ready for winter. The year two experience has been quite a roller coaster ride since then.

If you have not read about year one, here is a Quick Summary of what I have learned so far:

1. Before you start, get your soil tested as tea plants thrive at PH 4.5 to 5.5. Amend the soil if necessary and use nursery recommended seed starter. Start the seeds in deep containers (6" or more). It is better to plant a seed in a tall container due to the long tap root. The seeds grown in tall pots had long healthy roots while the shorter pots grew a plant with curled roots which did not survive the winter as well.

2. Tea plants do not like "wet feet" so a free draining soil area is important for field growing and container type used.

3. If you perform a "sink test of seeds" (i.e. placing seeds in a gallon pail of water and waiting one day to see which seeds float or sink) to check for viability. Note: The sinker seeds were usually good but the floaters are still possibly viable (about 40%), so do not throw them away. You may still get some good plants and they have proved to be hardy.

4. The tea plant does best in warm weather from 55ºF to 90ºF. The Loudoun overnight weather does not stay warmer than 55ºF until the end of May or the beginning of June. The seeds began to grow well after hitting the warm night temperature.

5. Tea plants like muted shade. Some of my best plants were under the trees. The indoor container plants were in a north facing room and had just a few hours of sun. I recently viewed a documentary about tea growing in Japan and learned that the farmers there cover the plants in spring with straw mats that let dappled light in and offer protection from the strong sun. They claim that you get a stronger tasting tea product.

Year Two

Eaten one year old plants

By the fall of 2015, I had three of four remaining plants that were purchased from a NC nursery in 2014 and I had transplanted all the seedlings (over 150) into the garden. I laid down pine mulch over newspaper to keep weeds down and positioned four bails of straw to surround the planting area. (My thought was that the cold winter wind blowing over the empty field area would damage the young plants and perhaps the straw would protect them.)

Around the garden area, I had a four foot fence that successfully kept out my two dogs. All seemed well until a late fall day when I realized that more than half of the seedlings were gone! I then threw straw around the remaining plants. But by the next day, most of the seedling leaves were eaten. My heart sank as I realized that the local deer population had tasted tea and came back for more!

At that point, there was nothing I could do. My seedlings were decimated. I would have to wait until spring to see if any garden plants would survive.

Plant moved inside for winter

It was lucky for me that I had chosen eight especially large and healthy plants and put them in containers to be moved inside for the winter. (I was afraid that the cold Loudoun winter would possibly kill all the field plants and I wanted at least these eight to be protected.)

In addition, I had some other seedlings planted in a fenced in area on a hill. The deer did not disturb that area as it was closer to the house. Those plants were also protected from the wind with a plastic sheet cover on the fence that blocked the north wind coming up the hill.

So, I watched and waited through the long winter that produced 42 inches of snow to see if any of the tea plants would come back.

May came but nothing really changed. It was getting to the 55ºF night time temperature, but there were still brown sticks out there.

Survivors found

It wasn't until mid-June while weeding carefully that I spotted a brown stick with green leaf buds coming out from the brown earth. Eureka! there was hope. Each week I would weed and find a small plant with one or two leaves. Every time I found one, I would place a flag next to it to signal caution when weeding there. One thing that helped find the small survivors was the method of planting I had chosen. I planted in 12 inch intervals in rows and left the soaker hose in place during the winter. I was able to calculate where the next plant would be.

So, it is now August and I have taken a tally of how many tea plants have survived.

From the original four plants purchased from North Carolina three years ago, there are three left. One died after the first winter, however, the three remaining are now bushed out and healthy. Last fall they even produced a few white flowers. They are on the hill and were not touched by deer. I have recently taken cuttings from them to see if I can propagate a few new plants that will be acclimatized for Loudoun County.

I have seventy seed plant survivors in the far garden made up of sinker seeds. These were decimated by the deer. I estimate that I lost about 50% of that field. The survivors now look the size of last year's first time growth, but I am happy that they have survived both deer and winter. This fall I will be putting up stronger fencing.

I have twenty five plant survivors in the floater field. This area is covered more by shade and the emerging plants seem healthy. I lost more than 60% in that area but the survivors seem very healthy.

There are 43 plants on the hill garden, now covered with a strong cage fence. These plants are from the floating seeds and were not eaten and were not pampered at all.

The eight plants that were wintered inside were put in the garden this July. They are doing great outside and have grown twice the size of the outside yearling plants.

In total, I have approximately 155 tea plants in the garden.

Note: All of the outside tea plants sustained winter damage. The harsh cold and winds of January and

February turn most of the leaves brown and a lot fall off. However, I have found that by late May new leaves emerge and the plants seem to take off growing in June.

What's next?

1. Maintenance of Surviving Plants: Keep the weeds at bay, water with soaker hoses, protect from strong winds, and apply amendments to help with the PH level.

2. Improve the fencing before fall. I have acquired a few new cage type fences that will cover about 4-6 plants each. I have placed them in a full row and feel confident that this will be a good solution to deer. I will also double the outside fence height and put in a second inside fence in the field garden.

3. Begin to experiment with cuttings to propagate the plants. The tea plants from North Carolina have survived three Loudoun winters. I have taken cuttings from them in August. It is recommended that a cutting should be from the new growth area on the stem. The time to make a cutting is usually mid to end of July.

   The Korean yearlings that have grown from seed and survived the deer and winter have too few leaves to pick or take cuttings this season. Next year, I will be assessing the Korean plants that have survived the best and are the biggest to begin cuttings for propagation.

4. Pick leaves off of the larger bushes, dry them, and sip my first cup of Loudoun grown tea. In the spring, I will be looking to pick the first flush of growth from the yearlings and the North Carolina plants to compare the taste of the tea leaves picked.

5. Keep notes to report on any growing issues with these plants. So far, I have not experienced insect or mold damage. The damage from the cold/wind was evident but did not kill the plants. In the future, a hoop house could be used to help with protecting the plants from the winter winds and harsh summer sun.

Summary

Tea plants are slow starters and take up to three years to begin to offer leaves for picking when grown from seed. They are an evergreen plant/bush that flower in the fall. Tea plants can grow up to 10 feet and live over a hundred years, so it is important to pick the right place to plant them in the garden. Young tea plants grown in the garden must be protected from deer and other animals such as voles during the winter season. Planting them in a semi shade area vs full sun is better for growth.

Healthy 3-year old N.C. plant

Tea plants can also be cultivated indoors with the plants kept in pots outside during spring and summer and brought indoors to overwinter. Indoor overwintering protects the leaves from a hard frost and keeps the leaves evergreen.

Whatever growing style you choose, garden or container, the tea plant is an interesting newcomer to Loudoun County. It will be a few more years before we can assess if growing tea in Loudoun will be commercially viable, however, the Loudoun County gardener can have this plant growing in their garden to experience the thrill of sipping a cup of their own garden variety of Loudoun Tea.

Nancy Feeney, Loudoun County Extension Master Gardener

All photos by Nancy

Pest Spotlight

Fact or Fiction: Clearing Up Common Misconceptions of Garden Insects

Aphid Giving Birth
Photo by MedievalRich [GFDL (http://www.gnu.org/copyleft/fdl.html) or CC-BY-SA-3.0 (http://creativecommons.org/licenses/by-sa/3.0/)], via Wikimedia Commons

As gardeners, we often have a, "love hate" relationship with the population of insects that shares our space each season. For some of us, it tends to sway more on the "hate" side when it comes to the damaged vegetables, flowers, and itchy bites they tend to leave behind. To add to it, a substantial amount of misinformation exists regarding insects, snails, birds, and even toads and their role in our backyard ecosystems. This article highlights some of the insects we are not so fond of and examines the truths and the exaggerated attributes they have been given.

Top 3 Most Misunderstood Pests in the Garden

1. **Aphids:** They are mean, green (or orange, pink, or yellow), eating machines that take no time at all to show up once the weather turns warm in early Spring. Despite their less than desirable qualities of sucking the health right out of a wide variety of plants, aphids are a unique insect with complex biology and a fascinating lifecycle.

    - **FACT: Aphids Reproduce Asexually**
      Aphids are one of the few insects (and animals for that matter) that in certain generations able to reproduce without a mate. Aphids have multiple generations per year depending on where in the country you are and it is common to have one generation where all female offspring are born pregnant. These females will give live birth to aphids approximately ten days after hatching from an egg. They do reproduce sexually as well throughout other generations. How is that for complicated?
    - **FICTION: Aphids carry black sooty mold fungus**
      This is an example of "exaggerating" the facts. Aphids do transmit viruses from plant to plant through the use of their piercing-sucking mouthparts, however, black sooty mold is not spread via that method. The honeydew the aphid produces is rich in sugars and not only attracts ants, but fungi if left to sit in a humid environment over time. It is not capable of spreading this in the same capacity as a virus.

2. **Carpenter Bees**: For some of us, defending our garden also means defending fence posts, sheds, and eaves of homes from Carpenter Bees every year. Despite their scary appearance, they seldom sting people or pets. The male bee is unable to sting.

    - **FACT: Carpenter Bees Are NOT Social Insects**
      Do not be offended if they do not show up to your next party! Despite their similar appearance to other social hymenopterans such as Bumble bees, Carpenter bees

Carpenter bee on a flower Photo by J. K. Barnes U. of. Ark

do not nest in large groups and lead a fairly solitary lifestyle.

- **FICTION: Carpenter Bees Eat Wood.**
  FALSE! This is probably the most wide-spread of all the misconceptions on insects out there. Though females drill into wood to hibernate in and eventually lay eggs, they do not actually consume it for nourishment. Like most bee species, they feed on nectar and pollen instead.

3. **Mosquitos**: Another classic in the, "most hated insect files" is the Mosquito. For many it sucks (pun intended) the fun right out of the summertime backyard garden experience. They are also perhaps the MOST misunderstood of all the insects in terms of the role they play within our ecosystem. This article could entirely be devoted to myths surrounding these flies.

    - **FACT: Mosquitoes Dislike Citronella Because It Irritates Their Feet**
      Yes, this is a fact. Many insects have receptors for the sense of smell and taste on body parts likely to come in contact with foreign materials. They find both the taste and smell displeasing which is why candles and incense made from citronella tend to be reasonably effective.

    - **FICTION: Since Mosquitoes Dislike Citronella, Citrosa (Mosquito Plant) Is Just As Effective**
      Citrosa is actually a Geranium (Pelargonium) that has been cultivated to contain oils from the citronella plant. Though there was a lot of hope for diversifying the repellent plants in every gardener's repertoire, research has shown that it has little effect. However, rubbing the oil on one's skin may unleash some repellent-like qualities.

Citrosa Plant [Public domain], via Wikimedia Commons

References:

1. Borror and Delong. *Introduction to the Study of Insects*. Cengage LearningCRC Press, 2004. 7th Edition.
2. Smith, E.H. and Whitman, R.C. (2007). Wood Infesting Insects- Carpenter Bee. In *NPMA Field Guide of Structural Pests*. National Pest Management Association International.

Amanda Rose Newton, Board Certified Entomologist and Loudoun County Extension Master Gardener

Enhancing An Ornamental Border

We all know how beautiful a well thought out herbaceous border is throughout the season. And with the internet, there are unlimited varieties of annuals, perennials and bulbs available to us as never before. Whether 5' long or 250' long, borders at their peak of bloom amaze with color, scent, texture and form.

The perennial border at Filoli in Woodside, California which extends for hundreds of feet is an example of such beauty. The variety of plant material and accompanying insects is amazing!

Or perhaps an informal border is more to your liking. Here, Agastache (hyssop), Amsonia (Arkansas Blue Star), Chrysanthemum, Eryngium (Sea Holly), Geranium, Lilies and others are used to create a much more relaxed feel.

However, borders don't have to be large and they don't have to consist of just herbaceous plants. Try adding shrubs and evergreens *and even fruits and vegetables* - what a great way to maximize your space and create crazy diversity. It's not as difficult as it might sound.

Let's start with a small space, say 10'x10'. In the back, plant a fruit tree and espalier it between 2 posts (see the Fall 2014 issue of the *Trumpet Vine* for an article on training and growing espaliered fruit trees). Taller plants such as Oriental Lilies, Perovskia and Echinacea are planted in front of the fruit tree (leave some space for light, air circulation and access), in the middle of the border you could plant basil, dill, sage and rosemary and in the front prostrate rosemary, parsley and thyme. Think about letting some of your herbs go to seed, the results are amazing and often times unexpected! There is nothing even approaching monoculture in this scheme.

In the following two pictures, the posts are 10' apart and the border is just 10' deep. On the left we planted Blue Lake bush beans to accompany the Degroots Spire Arborvitae and espaliered pear trees. A couple of years later, that same space has filled in with Perovskia, Salvia, Oriental Lilies and Parsley which was allowed to go to seed and is covered with yellow flowers to the right of the birdbath. Notice how much taller the Arborvitae are and the pear tree has fruit!

And speaking of the bird bath, don't forget to provide water for our feathered friends – they will thank you throughout the hot dry days of summer.

Since most fruit trees require more than one variety for successful pollination you could plant a Belgian Fence to accomplish that need. Below, in a 20'x10' section, 9 different pear varieties are planted and trained to form these diamond shaped "windows". Some nurseries even offer "multi grafted" fruit trees that consist of at least 3 different varieties growing on a single tree.

The sunny side of a garage or house is also a great place to enhance a shrub border. Here, we planted a few different tomato varieties with cucumbers behind the Weigela plants. Just be sure your trellis material is strong enough to hold the weight once the plants become covered in fruit as this netting didn't hold up! Next year we will go with a wooden trellis. The best part of this planting are the Sungold cherry tomatoes draped over the deck railing… so easy to step outside for a bite!

From year to year change what you grow. One year we planted beans, another year melons. Some years, both. Last autumn we planted celery, radishes and rutabaga. When you enhance your ornamental border to include edibles, you've created a beautiful and highly productive garden that has year round interest, structure and function.

When planning to enhance a border, you must take into consideration the sun exposure your plants will receive, irrigation and of course ease of access. As autumn is one of the best times to plan for that enhanced border, take advantage of all the helpful resources available on the web, especially the publications found at Virginia Tech as they are specific to our growing conditions. The fall 2015 issue of the *Trumpet Vine* is all about fall being the best time to plant and plan. On page 8 you'll find an article called Thinking about Next Year's Vegetable Garden. So take a stroll out to your yard, I bet you'll be surprised at what you can do in a 10'x10' space or how to use that empty wall that has a bright sunny exposure!

As winter closes in and all your herbaceous plants have gone to sleep, look at the beauty just outside your window when a mixed border is dusted in snow. Now you can really see the structure and interest you created and look forward to the bounty of your garden next year!

Joanne Patton, Loudoun County Extension Master Gardener
All photos taken by Joanne Patton

Endlessly Fascinating . . . Part 2

A FEW DEGREES of SEPARATION Surprises, blessings in disguise, serendipity, aha moments, and poetic wonder are bound to happen in the gardening life. Whether we choose to stop to smell the roses or get that whiff of delightful scents as we rush about our lives, there will be encounters with the natural world that will fascinate. Gardening is a hobby or a vocation to some, a living to others, but an experiential classroom to all.

Let us start with images of a unique flower. It is more enchanting up close and in person, and just stunning!

Turmeric blossom Photos by M. Daniels

The clean look of the white and green flower caught my eye at a garden center. I checked the label, and sure enough, I was not familiar with *Curcuma longa*. I did a quick google search, and it turned out to be flower of the spice T**urmeric**. Invasiveness would not be an issue for this exotic/tropical herbaceous plant. Like canna or dahlia, it needs to be dug up in a zone 7 garden. I was enamored with the bloom, and it went home with me. This new "acquisition" became yet another opportunity to add to my plant knowledge. And how surprising was what I learned further! The turmeric plant may not be native or familiar, but hear this from a garden blog:

"*Did you know that American mustard (the stuff we put on hot dogs) relies heavily on turmeric for its coloring? So do our cheeses, butters, and even our textile dyes*."
http://www.thehomesteadgarden.com/?s=turmeric

Turmeric root, Photo by M. Daniels

Proper online research includes scrutinizing the source or selectively using tried-and-true websites such as .edu or .gov sites. How serendipitous to come across the Virginia State University's (VSU) website covering turmeric! VSU is the other land-grant university, along with Virginia Tech, aligned with Virginia Master Gardeners.

It turned out that in the fall of last year, VSU's College of Agriculture held a "Ginger and Turmeric Field Day" at the VSU Randolph Farm in Petersburg, VA. Was that the reason I found the turmeric plant for sale in town? See this: http://www.vsuag.net/

One of the Field Day presentations was "Turmeric Medical Research at VCU" offered by the Virginia Commonwealth University's (VCU) Medical School in Richmond. Culinary experts even had on display at the premises value-added products using turmeric. What seemed exotic turned out to be of serious local interest because of the plant's lauded health and medical benefits, among other promising uses for it.

My research even got me a recipe for "super healthy" Iced Turmeric Latte from a mainstream culinary magazine. So now we are also in garden-to-table territory. As incredible as the fun part of discovering Curcuma or turmeric is — decorative flower and edible rhizome — imagine these turmeric-related publications from our own region:

- Virginia Commonwealth University: From the journal *Organic and Biomolecular Chemistry*, VCU Massey Cancer Center. "*Ingredient in Common Kitchen Spice Turmeric when Combined with Anti-Nausea Medication Thalidomide Effectively Kills Cancer Cells*."
- University of Maryland Medical Center: "*Turmeric*"

- National Institutes of Health, National Center for Complementary and Integrative Health: "Turmeric"

To think that I came across all this because I was drawn to the turmeric plant's beautiful flower.

WEEDING IN A WHOLE NEW LIGHT

Most gardeners would wish no weeding is ever necessary, especially if, one day, realization hits that weeds have gotten ahead of us and what a chore it will be! How about a change to our perception of weeds altogether? Have you noticed there has now been a move toward a new-attitude about the benefits of weeds?

Weeds as nutritious edibles, such as dandelions being a versatile treat straight out of organic or chemical-free gardens, is one whole weed article by itself. For now, how about going over some aha moments that weeds can actually be desirable in the garden? Instead of mindless pulling, how about strategic pulling? Here is why:

Photo by M. Daniels.

I thought this was a weed. I did not plant them. There were several in my garden back in the spring, in between cracks and in odd places … no, I did not plant them.

As I started pulling them, however, I could not help but admire the gray rosettes. I was not sure what they were, so I stopped pulling, curious what they would turn out to be. And then one spring day, revelation! They are **White-flowered Rose Campion** (*Lychnis coronaria 'Alba').*

http://www.robsplants.com/plants/lychncoroa (Photo by Rob's Plants)

Volunteer "weed" plants? At times, when weeding chores are postponed (selectively), amazing surprises pop up. What would have been pulled got the chance to grow and reveal itself. My free white campion rosettes grew to be striking bouquets of dainty white on silver-gray in my spring garden. Having had derived pleasure from a volunteer plant, learning more about it can add to one's gardening know-how. For example, checking further would help a gardener decide to allow that "weedy" plant set seed or not. Or just pull them next time.

Chewed up wild amaranth Photo by M. Daniels

Trap crop (and critter food too). Think about those lush and healthy weeds in the vegetable garden that were not pulled early enough, or worse, that had set seed in the past year like prolific-seeder tansy would. **Wild Amaranth** proved itself to be a desirable garden weed when one day, a sidetracked gardener notices that vegetables (specifically cucurbits) were spared as beetles congregated instead on the well-grown amaranth. Had all amaranth seedlings been pulled, they would not have been there serving as insect-diversion trap crop! Cultural pest control in action.

On another day, the tips of the tall wild amaranth, and also the tips of the **Red Clover** allowed to grow in the veggie beds, were trimmed by critters. The bush beans and other vegetables standing lower were spared! A sigh of relief for critter-frustrated gardeners.

Blessings in disguise these surprises may be, they do not suggest letting gardens become overrun with weeds is a good idea. As a stop gap for the challenges of gardening while balancing life's activities, this new perspective about weeds keeps gardening doable and realistic. There are weekend gardeners, "lazy" but environmentally responsible gardeners, those who would like to have a garden, so gardening that is more forgiving organically is encouraging.

When the time, need, or situation presents itself, the gardener who cares about nature would have many responsible solutions to turn to: Mechanical or Physical, Biological, Cultural, or as a last resort for the home gardener, Chemical controls. In the meantime, the learning and discoveries can be fascinating.

Red Clover leafing out again. Photo by M. Daniels

UPDATE ON THE CEDAR-APPLE RUST

Once the friend who was stumped and amused by the alien-looking orange fungi on his eastern red cedars, *Juniperus virginiana*, learned about it, he seemed to have maintained ongoing interest in the phenomenon. When he caught sight of what appeared to be the next stage of the Cedar-Apple pathogen, he made sure to take photos of it.

Fungus on Cedar in spring Photo by Bernie Collins

Fungus on apples in summer Photo by Bernie Collins

The orange fungi on the eastern red cedar, especially when proven not generally damaging to the evergreen trees, were more of an amusement and curiosity. Yet now seeing the effect of the rust it sends to the apple trees, there is nothing amusing anymore. This would be devastating to orchards for commercial reasons, but to homeowners who planted fruit trees for more personal reasons, these images can be disheartening.

Treatment of Cedar Apple Rust

1. Choose resistant apple cultivars when available.
2. Rake up and dispose of fallen leaves and other debris from under trees.
3. Remove galls from infected junipers.
4. If this fungal problem continues, organic disease-fighting fungicides can be applied weekly starting with bud break on apples and crabapples.

Maria Daniels, Loudoun County Extension Master Gardener

THE HERB REFERENCE: Calendula *(Calendula officinalis)*

Ask a gardener about calendula, and the word "cheerful" will undoubtedly be used to describe this herbal plant. Calendula brightens up our gardens with its sunshiny colored flowers of orange and golden petals, which never seem to stop blooming. Botanically speaking, as a member of the Asteracea family, each "petal" is actually an individual ray flower. These petal-like ray flowers are a special miniaturized type of composite flower. It is these so-called "petals" of the calendula flower that have been popular for centuries as an essential medicinal and culinary herb.

Courtesy the Herb Society of America

Calendula is also referred to as pot marigold, which should never be confused with the unrelated garden marigolds (or French marigolds), from the genus *Tagetes*. The flowers are somewhat similar in appearance, but their leaves are not similar. I find that the most notable difference between the genus *Calendula* and genus *Tagetes* is the unpleasant odor of the *Tagetes*, when compared to the mild scent of the *Calendula*. Additionally, most garden and French marigolds are toxic, and should never be consumed.

History of Calendula

Historically, calendula has been valued for centuries as a healing plant. The ancient Egyptians used the petals to treat wounds. During the Middle Ages, calendula was used internally for indigestion, and externally for healing the skin. Physicians during the Civil War used calendula on the battlefield to heal wounds. Annie Burnham Carter wrote in her book *In An Herb Garden* (1947), that in England during World War I "Miss Gertrude Jekyll gave a field on her estate for the exclusive cultivation of pot marigolds . . . the flowers which bloomed there were sent in great quantities to France to be used in dressings for the wounded." Today, calendula is a popular additive to lotions and creams due to its soothing anti-inflammatory properties that aid in the healing process for many of our skin ailments, such as sunburn, insect bites, rashes, abrasions, diaper rash, and even stretch marks.

As a culinary herb, the petals were used to flavor and garnish foods by the ancient Greeks and Persians, and continue to be used in many kitchens today. It has been dubbed the "poor man's saffron" because of its use as a seasoning as well as lending a yellow-gold color to soups and stews, instead of using the far more expensive herb saffron. I personally enjoy adding a dried flower to my herbal tea on a cold winter morning. Not only is it soothing, but also brings back memories of my summer garden.

Growing and Harvesting Calendula

Calendula is a hardy, easy-to-grow annual that is deer resistant and non-invasive. Many herbalists believe that the common deep-orange, single-petaled variety is best, for the medicinal value as well as flavor. The squiggly, unique looking seeds can be sown directly into the garden in mid-spring, or you may choose to start them indoors, 6 weeks prior to the last frost date. (Note that

Harvesting calendula Photo Myrobalan Clinic Blog July 13,2013

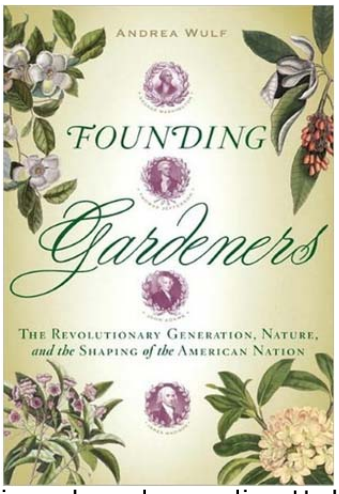
light inhibits germination and seeds require a cool germination temperature around 60 F.) For them to flower prolifically, be sure to transplant the seedlings in a location with full sun. If it is a very hot location, they will tolerate partial shade. The plant requires well-drained soil, best amended with compost. Calendula prefers cooler weather, and performs best in early summer and again in fall.

To promote flowering, it is best to pick flowers every 3 days. When picking, your fingers will become wonderfully sticky with a resin that is a healing element of calendula. Collecting flowers on a hot, sunny morning increases this resin content. Dry the flowers quickly after harvesting, by placing them on screens in a well-ventilated, warm area out of direct sunlight. Once they are absolutely and completely dry, store the whole flowers, or just the petals, in air-tight containers in a dark location.

Please note: *If you tend to have a sensitivity or allergic reaction to any members of the daisy family, please be aware that calendula is part of this family of plants, which contain sesquiterpene compounds.*

Karen Olgren, Loudoun County Extension Master Gardener

Founding Gardeners: The Revolutionary Generation, Nature and the Shaping of the American Nation by Andrea Wulf



Founding Gardeners written by Andrea Wulf in 2011 will have much appeal for many years to come because of its blend of American history and gardening. I was pleasantly surprised as the author described how America's landscape, soil and plants played an important role in the creation of our nation. In her description of each of the first presidents—Washington, Adams, Jefferson and Madison—it is overwhelmingly apparent that gardening and farming were not just important in their lives but also the source of much pleasure and relaxation.

She describes Washington, upon returning to Mt. Vernon in 1784 after the Revolutionary War, as a farmer whose dress and manners resembled that of a Virginia planter. His gardens were a departure from traditional colonial plots which contained European plants. He adored native species of trees and his collection of trees celebrated America: balsam, white pines, eastern hemlocks, live oaks and magnolias. He knew tobacco crops exhausted the soil and tried to plant crops to replenish the ground. The author also points out that Washington believed that the future of America lay in its fields and forests and that after the chaos of the revolution, he and other farmers were bringing order to the land.

After Washington announced his retirement in 1796, John Adams ran for the office and won. Adams' farm consisted of 40 acres of land that he inherited near Quincy, Massachusetts. It was modest compared to the thousands of acres owned by Jefferson and Washington. Adams regarded himself as a farmer first, finding cities "harmful to health and mind". Wulf describes Adams as happiest when planting, pruning apple trees or just getting his hands dirty digging ditches. Indeed, he named his home "Peacefield", to commemorate the years of peace that the new country enjoyed after the War of Independence and to emphasize the solace he felt when he was at home. Both Adams and Washington were critical of Virginia farmers who had no understanding of nutrients or fertilizers which resulted in abuse of the land. Washington encouraged crop rotation and discouraged the raising of tobacco.

Jefferson, who built his plantation, Monticello, on a mountain top, believed that "the greatest service which can be rendered any country is to add a useful plant to its culture". He considered botany a way to improve all aspects of life: culinary, medical, economic, and aesthetic. Wulf pointed out that, to Jefferson, gardening and planting were more than patriotic occupations; they were also a refuge from the wrangling of politics. Her book describes just how miserable the living conditions were in the capital. Jefferson described his final years in office as "the most tedious of my life". He longed to return to his gardens at Monticello where he found solace and inspiration.

James Madison served as President from 1809 until 1817. Upon his retirement he expressed delight in being "freed from the cares of public life". He also loved working and relaxing in his garden. His goal was to put an end to farming methods of that era which destroyed fertile soil. Being one of our earliest environmentalists, he knew that man's reckless use of the environment would change the delicate balance between man and nature.

Wulf illustrates how important gardening was to our earliest presidents. Her research on these four American presidents and their gardening practices make this a must read for any gardener.

Beatrice Ashford, Loudoun County Extension Master Gardener

Notes from the Help Desk:

Q: There are nodules or small brown globules on my oak leaves. What is causing this and will it hurt the tree?

Photo credit: Ronald F. Billings, Texas Forest Service, Bugwood.org

A: These are called wasp galls, and can actually be found anywhere on the oak tree including the roots, branches, flowers, bark and twigs. They come in all shapes and sizes too.

These are formed by cynipid wasps and are "abnormal growths of plant tissue induced by insects and other organisms". The parasite is actually feeding on the plant tissue, which causes the surrounding plant tissue to form a gall. The gall offers protection for the parasite to mature. Luckily, most galls do not harm or damage the tree, and also lucky for us, these wasps do not sting humans. Should you think the galls unsightly, you could prune out the branches where they are occurring, otherwise, it is okay to let nature take its course.

For more information on oak galls and other galls, see the following publications;

Virginia Tech Publication: https://pubs.ext.vt.edu/ENTO/ENTO-145/ENTO-145-pdf.pdf

University of Illinois Extension: https://web.extension.illinois.edu/ccgms/downloads/42438.pdf

Penn State Extension: http://ento.psu.edu/extension/factsheets/galls-oak

Barb Bailey, Loudoun Extension MG