Trumpet Vine

Knowledge for the Community from Loudoun County Master Gardeners

Spring 2016

Volume XII, Issue 2 www.loudouncountymastergardeners.org

Irrepressible Spring!

The vernal equinox marks that special moment when the sun crosses the celestial equator going from south to north. In 2016, this equinox arrives on *March 19* at 7:30 p.m. EDT. The sunrise is earlier, and nightfall comes later, plants are sprouting, winds are softening, the sun is warmer — the hallmarks of spring.

Redbud Photo Courtesy VA Tech Dendrology

Hickory Bud Break Photo Courtesy U of Wisc. Arboretum

Apple Blossoms Photo by Barb Bailey

The early spring flowers emerge and blossom so quickly, take time to stop and notice them. The bluebells are just pushing up above the leaf litter and the blue flower buds are already visible. More subtle but no less miraculous are the tree leaves as they unfold from their buds. See if you can observe the less showy tree flowers that depend on the wind for pollination — and cause those spring allergies — on the oaks, maples, sycamores, hickories, and many more. There's so much going on in this season. Look closely, and don't miss the show.

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

Loudoun County Master Gardener Lecture Series

Free and open to the public, 7pm
Rust Library
380 Old Waterford Rd NW
Leesburg, VA 20176 unless otherwise noted

April 7. ***Herbs: Heirlooms from the Past, Grown Today at Smithsonian Gardens*****, with Erin Clark, Smithsonian Garden horticulturalist. Rust Library.**

May 5. ***From Weeds to Artisan Goat Cheese - A Year in the Life of a Cheesemaker*** **with Molly and Sam Kroiz at Georges Mill Farm 11873 Georges Mill Rd, Lovettsville.**

June 2. ***Creating a Native Meadow and Native Woodland Gardens at Wolf Trap*** **with Phil Goetkin and Edgar Deskins. Rust Library.**

July 7. ***Growing and Selling Organic Cut Flowers*** **with Barbara Lamborne, Greenstone Fields, Wheatland, at 38223 John Wolford Rd, Purcellville, VA 20132**

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

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

The Garden to Table Group (G2T)

Each winter season brings forth an anticipation of spring rebirth in the garden. For the Virginia Cooperative Extension Master Gardener's Garden to Table (G2T) group, undeniable enthusiasm for fresh vegetables abounds year round but the arrival of spring heralds the time to encourage and educate the community on "growing your own." We live in a county where residents understand the importance of knowing where their fresh food is coming from and recognize the benefits of establishing their own food gardens.

Spring cabbage Photo by Denise Palmer

The G2T group has found multiple ways to share their knowledge over the years. Educational outreach activities have found eager audiences with community organizations, corporations, government agencies and residential associations. With a vast number of county residents living in what is considered "suburbia," where space and time are limitations to starting a fresh food garden, many of our most popular lectures center around small space, intensive or container vegetable gardening. Container vegetable gardening has exploded in the past couple of years bringing many great options in both materials and varieties of smaller sized vegetables.

Gum Springs Library presentation

January may be the month of cold and snow but the group has found this the perfect month to educate residents and begin building enthusiasm for fresh vegetables. This year, as in past years, the group held a kick-off to the 2016 season in partnership with the Gum Spring library. This year's lectures featured seed starting and container vegetable gardening and was well attended by both new and experienced eager learners.

In addition to educational lectures the group also brings its knowledge to private and public community gardens by holding onsite lectures and periodic mentoring during a gardening season. Currently the group, in partnership with the Town of Leesburg, P&R, provides a mentor to Ida Lee's community gardeners. Onsite mentoring education in this way is invaluable as it allows a practical approach to education with a firsthand view of the proper methods in action. This mentoring is especially helpful to new gardeners. *A failed gardener is likely one who will never return to gardening.*

Each new season brings out interesting ways to utilize our group's knowledge to benefit county residents. *Excited about food gardens*? The events calendar on the MG's website lists all of our current public lectures. Starting in April we also hold monthly Saturday morning lectures in the Demonstration Garden at Ida Lee on specific seasonal issues. Please see the calendar for these event dates as well.

To request a speaker or mentor from the Garden To Table Group see http://loudouncountymastergardeners.org/programs/garden-to-table/

Enjoy the new season!

Denise Palmer, Extension Master Gardener

Eat Your Purple Veggies

Have you heard the expression, "Eat the Rainbow"? It is a simple way to convey the idea that eating a variety of colorful foods helps to ensure you receive a complete range of nutrients. We are all very familiar with green vegetables and yellow, orange and red fruits and vegetables, but what about the less common purple, blue and black varieties? Is there a benefit to growing and consuming more of these foods?

All Blue Potatoes Photo Courtesy Urban Farmer

A diet high in the consumption of any fresh fruits and vegetables is associated with a reduced risk of chronic disease. They are an important source of essential vitamins, minerals, fiber and also phytonutrients. We should all be familiar with vitamins, minerals and fiber, but what about phytonutrients? "Phyto" refers to the Greek word for plant, and phytonutrients are natural chemical compounds found in plants. They help protect plants from pests, disease, and ultraviolet radiation. They are also responsible for a plant's color. Phytonutrients have been found to provide health benefits to humans when consumed. Unlike vitamins and minerals though, they are not considered "essential" for life, so there are no recommended daily allowances. Because of this, they are often referred to as phytochemicals.

Each color of food provides different phytochemicals which work in different ways. Eating a variety of colors ensures that we derive all of their various benefits. Purple foods contain anthocyanins which have been shown in studies to have antioxidant and anti-inflammatory properties.* They may also help improve memory and enhance vision as well as decrease the risk of heart disease and certain cancers. The total anthocyanin content of foods varies greatly, but in general, the deeper the color, the greater the concentration of anthocyanins.

Cosmic Purple Carrots

Photo courtesy Urban Farmer

Some purple and blue foods that we can grow in our own gardens include potatoes, carrots, cabbage, cauliflower, eggplant, tomatoes, blueberries and blackberries. There are many varieties to be found in seed catalogs, and now is a perfect time of year to think about trying something new. Potatoes are thought to have originated from the high altitudes areas in Peru where they grew in shallow, rocky soil. The purple pigment may have developed as a defense against the strong sunlight. The darkest purple potatoes have four times the antioxidant potential of regular potatoes according to the USDA, making them comparable to kale, Brussels sprouts, and spinach. Purple potato varieties such as All Blue, Adirondack Blue and Purple Majesty are quite striking and make stunning chips or fries.

Carrots originated from the mountains in Afghanistan. The earliest carrots were mainly purple or yellow, not orange. Cosmic Purple and Purple Haze are purple-skinned varieties with orange and yellow centers. Do not peel these carrots and reap all of the benefits of the phytonutrients contained in the skin. Purple Sun and Purple 68 are carrot varieties that have dark purple skin that continues through all but the occasional white central core.

Indigo Rose Tomato
Photo Courtesy Totally Tomatoes

Eggplant, because of its beautiful, glossy skin, contains many phytonutrients. Black Beauty and Black Egg are common varieties. Patio Baby grows no taller than 24" and is ideal for containers. It produces 2-3" long egg-shaped fruits.

The Indigo Rose tomato is a semi-determinate variety that produces round, 2-3" fruits that have purple coloring on any parts exposed to sunlight, while the shaded portions remain a deep red color. Indigo Blue Berries is an indeterminate cherry tomato which ripens from green to purple to nearly black with a dark red bottom.

Graffiti Cauliflower
Photo courtesy Earth Sky Time Community Farm

There are also corn varieties such as Black Mountain and Hopi Blue, a striking purple cauliflower called Graffiti, and blocky, thick-walled peppers such as Merlot and Purple Beauty. Bush bean varieties include Royal Burgundy and Purple Queen, and lettuce varieties such as Blackjack, Merlot, Outrageous, and Four Seasons are tasty, beautiful, and nutritious. If you are looking for something new to grow this season, and you would like to make your plate beautiful like a rainbow, consider trying some of these phytonutrient rich plant varieties.

***** Li-Shu Wang and Gary D. Stoner, *Anthocyanins and their role in cancer prevention*, US National Library of Medicine, NIH, 2008.

Lorrie Greenman, Extension Master Gardener

Update on Straw Bale Gardens

Straw Bale Garden 2014 Photo by Normalee Martin

In the spring of the 2014 garden season, we built a six bale straw bale garden (SBG) in the veggie area of our Master Gardener Demonstration Garden at Ida Lee Park. We did it again in 2015, and are now leaving a spot in the veggie area to have one every year.

I wrote an article on SBG's for the summer 2014 Trumpet Vine, outlining reasons to have one as well as the process to get it started and maintained. Parts of it are repeated here along with information on what we have learned with 2 years' experience.

Our SBG has been a receptacle for leftover seedlings that needed a home. Those have included sweet & hot peppers, potatoes, tomatoes, squash, kale, parsley, cucumbers, basil, calendula and marigolds. Two plants can fit in one bale. Examples would be two tomatoes, one tomato & one pepper, or two potato plants. A row of four cucumbers will fit on a small trellis. There are plants that have been bred for smaller areas or containers that work well in straw bales.

At the end of the growing season, the spent bales can be used as mulch or in your compost, because you need new bales every year. That way you can place them in a different spot every season if you want or need to do so. Just remember that a north-south configuration of the bales is best, as that allows for the most sun exposure.

Putting a 6'-7' metal stake at each end of the line of bales, with wire stretched in between at about 2' and 3' high serves as support. The wires can also help support growing plants. Some plants need more support, and taller stakes can be secured in the ground outside the bale for the plant to be tied. The bales do not necessarily have to be positioned in a straight line, but for the space we have in our vegetable area, that is the best configuration.

Cucumbers, 2015 Photo by Normalee Martin

Seeds can be planted, but so far in our garden, seedlings have fared better. Soil can be added, but is not necessary. If you do put soil down, be sure to use sterile soil, such as new potting soil.

With plants that require attention due to pests, like cabbage & cucumbers (brassicas & cucurbits), row cover can be draped over the wire and plant and fastened to the bale with earth staples. Sun & water can still get in, but remember the cover has to be removed on most flowering plants in order for them to be pollinated.

One alternative to traditional container gardening is to use a straw bale as both the container and the planting medium. First you encourage the tightly packed straw to decompose quickly to become the planting medium. The process is called *conditioning*. It is an essential part of SBG. The result is that the composted straw has all the characteristics of a good growing medium.

Tomato and pepper plants in SBG, 2015
Photo by Normalee Martin

The strings that hold the bale together help make the bale the container. Straw has two distinct sides: cut and folded, and they are easily distinguished. The cut side is positioned upward and is the planting side. The container is actually the outside 'crust' of the bale, the part that is exposed to the sun and wind. It dries out quickly, thus decomposes more slowly. Preparing the bales for planting can be done quickly, in 12 days or less. The length of time is determined by the outside temperatures. The straw has to be allowed to decompose for several weeks, as a seedling planted into raw straw will fight for nitrogen from the bacteria in the bale and may starve. I use blood meal, as the nitrogen content is high—around 12%. Other nitrogen sources are bone meal, feather meal or chicken manure. Sprinkle 3 cups of fertilizer per bale, from end to end and side to side, and work in. Gloved hands are the most effective way to work the substance into the straw, but a hand cultivator is effective as well.

Nitrogen provides a food source for the bacteria that do the work of decomposing the straw and making it a suitable planting medium. Water the bales heavily after working the nitrogen source in. Continue watering on day 2. On day 3, add another heavy covering of your nitrogen source and water in well. Day 4 is strictly a water day. Day 5, more fertilizer and water. Day 6, water only.

After day 6, the microbial activity should be starting and you can begin to feel the heat if you put your fingers in the bale. For the next 3 days you will start using a balanced granular fertilizer, (example 10-10-10 conventional or 3-4-4 organic NPK), adding 1 1/2 cups per bale, and water in well. On day 10 cut back to 1 cup granular fertilizer per bale, and water in well. You may start to see earthworms in the bales, and this is good news. Mushrooms will probably sprout which means the insides have begun to decompose nicely.

On Day 12, the bales should be ready for planting. If planting seedlings, take a trowel and stab it into the bale, working it back and forth, making a hole big enough for the seedling. For planting seeds, there is no need for potting soil, but putting a 2" layer over the seeds planted in the bale will protect them. Clear plastic tray covers over the seeds can also help hold the heat and aid in germination.

The SBG environment is favorable to most any crop, with the exception of sweet corn and perennials like rhubarb and asparagus. Strawberries can do well when treated like an annual, as well as annual flowers.

Liquid fertilizer (we use fish/kelp) is recommended throughout the growing season every 2 weeks. Soaker hoses would be ideal. The bales can dry out quickly, so if a finger in the bale feels dry, it needs water. Looking at the plants can also show if they need water. Drooping? Water!! We water heavily every day we are in the DG, and on the weekends during the heat of the summer.

We have done comparisons by growing the same plants both in the ground and in the SBG. Last year we had a purple Cherokee tomato in the SBG and a grafted purple Cherokee tomato in the ground. While the one in the ground grew taller, the one in the SBG held its own with the same amount of fruit.

To review some advantages of having a Straw Bale Garden:

- Fewer weeds—just the occasional oat or wheat grass.
- No heavy work—the hardest part is carrying the bales into your yard.
- Fewer critter problems.
- No soil borne disease problems.
- Less possibility of frost damage. Keeping row cover draped over the plants and the heat from the decomposing straw keeps plants safe.
- Predictable—using fresh straw and the same conditioning recipe, the results are pretty much the same every year.

Even if the SBG is just an addition to your regular garden, it's worth trying. It is exciting!

Normalee Martin, Extension Master Gardener

"In the spring, at the end of the day, you should smell like dirt."

— Margaret Atwood, Bluebeard's Egg

Asparagus: The Reward!

(Third in the Asparagus series)

You've spent hours of time and a lot of energy preparing and planting your asparagus bed. Now you can finally look forward to enjoying the fruits of all your hard work!

Harvesting

In Virginia spears begin to emerge from the soil between late-March and mid-April, depending on the weather and the soil temperature. In soils which warm quickly, spears emerge sooner than in soils which tend to remain cooler longer.

With a new bed, harvesting restraint needs to be practiced for the first few years:

- The first year (the year you plant the asparagus), don't harvest any spears. During this first year the fleshy root system is developing; harvesting during this period will be detrimental to the long-term health and yield of the plant.
- The second year you may harvest for two weeks, taking no more than 4-6 spears per plant and harvesting only spears larger than a pencil in diameter; let the others grow.
- The third year you may harvest for 4 weeks and possibly as long as 6 weeks depending on spear size (see below). This year and in the following 10-15 years pick all the spears during each day's harvest, even the thin ones. Don't leave any unharvested spears in the patch. First, spears left in the bed will attract asparagus beetles, which will lay eggs on the spears, starting the cycle for the next generation of beetles. Second, the spears will fern out and get in the way when you harvest more spears.

Time to harvest! Photo courtesy of Johnny's Seeds, www.johnnyseeds.com

- The fourth year and for many years thereafter, you can harvest for six to eight weeks or even up to ten weeks, depending on the size of the spears.

For seed-grown plants, add an extra year at the beginning and shift all of the timing by one year.

Under no conditions should you ever overharvest; it will have a detrimental effect on the plant, reducing crown vigor, increasing the possibility of disease, and possibly affecting production in the future. When about 75% of the spears start to become small and thin, about the diameter of a pencil, stop harvesting and allow the spears to continue to grow and fern out. The fern will grow to as much as five or six feet tall and make a lovely background in the garden. You can support it with stakes and string or commercial supports if you wish, but it isn't absolutely necessary. It's important to keep the plants healthy, pest free, and growing vigorously; during the summer they are storing food reserves in the crowns and setting buds for next year's crop.

Cleanly harvested asparagus field at height of asparagus season. Photo by Muffinn, licensed under Creative Commons, From https://www.flickr.com/photos/mwf2005

Harvest in the morning while the spears are still cool. During cool weather you may be able to harvest once every two or three days when the spears are 7-10 inches tall. When air temperature rises to 70° or above, however, you should harvest twice a day, when the spears are only 5-7 inches tall to prevent the tops of the spears from starting to open and ferning out.

Harvest asparagus by cutting the spear about one inch below the surface of the soil or snapping the spear off by bending it toward the ground until it breaks. I prefer the latter method; I think it's faster and easier, and you won't damage yet-to-emerge spears with your knife. Since the stalk snaps at the point where it becomes tough, the entire stalk is edible.

Daniel cutting asparagus. Photo courtesy of Stephanie Donaldson, blog.theenduringgardener.com

Extending the Harvest: For those who just can't get enough asparagus, there are three methods of extending the harvest:

- Manipulate planting depth: Plant crowns at different depths: 3 inches, 4-to-6 inches, 6-to-8 inches, and 8-to-10 inches. Spears will emerge progressively, first from the plants planted at the more shallow depth, on through those planted at the deepest depth.

- Manipulate mulch: Remove mulch from a portion of the bed so that the soil warms there more rapidly, producing spears earlier. Mulch can be removed from the rest of the bed when spears there start to grow. Black plastic can also be used to briefly cover the area to warm the soil even faster. (Spears start to emerge when the soil temperature reaches 50 degrees).

- Manipulate the harvest: For those who have plenty of space, double the amount of asparagus you normally would plant. In the spring, harvest spears (as your normally would) from one half of the bed only. Let them fern out after the harvest is finished. Don't cut from the other half at all. Instead, let this half fern out. In mid-July, cut the stalks from only 4 or 5 plants in the *second* bed all the way to the ground. This will force these plants to send up new spears. Continue cutting periodically from 4 or 5 plants until you've cut all of the ferns and gotten a crop from all of the plants. The crop will be smaller than the spring crop, but you'll still have asparagus to eat in the summer. Be sure to water the second bed during this process; it's stressful on the plant. If you do this, always cut the spring bed in the spring, and always cut the summer bed in the summer. Don't switch them.

Blanching

In Europe blanched (white) asparagus, which has a different taste and texture from green asparagus, is a popular delicacy. The blanching process does have a down side; however, white asparagus, while a delicacy, isn't as nutritious as green asparagus.

White asparagus *Photo in public domain from https://pixabay.com*

If you want to try blanching, it's simple to do. Traditionally, soil was mounded up in hills over the spears and the spears were cut deeply below the soil level just as the tips broke the soil. This method is still used commercially, but in the home garden for just a few plants, there is an easier way: either cut large, 55 gallon plastic buckets in half and place end-to-end over a row or cover a row of plants with light-excluding, black row covers or plastic, supported with metal hoops. When you harvest the spears, immediately cover the plants again to continue the blanching process for the next spears to emerge.

Storing, preparing, and preserving

Storing**:** Asparagus deteriorates rapidly after harvest, losing both nutrients and flavor quickly. In addition, it can become tough and stringy if mishandled. After harvesting, immediately cool the spears down by soaking for five minutes in ice cold water. Remove the spears from the water and drain. For short term storage trim the stems, place upright in one to two inches of water in a glass or other container, cover with a plastic bag, and refrigerate immediately. For longer term storage, place in a perforated plastic bag and store between 33° F. and 36° F., with 36° F. and 95% humidity being ideal. Kept at this temperature and humidity, it can be

held for at least seven to ten days. (At 32° F., cold injury can occur after 10 days; at 40° F., the stems can become fibrous, the tip can start to open, and mold can develop).

Preparation: Asparagus can be eaten raw or cooked by virtually any method available and is excellent for stir-frying. For information about cooking methods, see the Michigan Asparagus Commission's web site at http://www.michiganasparagus.org/cookingtips/ or the California Asparagus Commission's web site at http://www.calasparagus.com/ConsumerInformation/AsparagusTips.html . These web sites also have many recipes, plus there are a plethora of recipes on the web.

Asparagus being blanched under black plastic. Photo by nemodoteles, licensed under Creative Commons, https://www.flickr.com/photos/nemodoteles

There are some very handsome asparagus cookers on the market, but it really isn't necessary to use one unless you're cooking asparagus often for a number of people. For two people, I use the bottom portion of a double boiler, stand my asparagus upright in the metal filter basket of an old, long-since discarded percolator, and cover it with the pan's lid, slightly atilt. It works — and I don't have another piece of equipment to store.

Preserving: Asparagus can be frozen, canned, or dried with freezing being the fastest, easiest method to use. For anyone interested in preserving asparagus (or other vegetables, fruits, or meat products) there are several excellent resources available.

- Some of the best written resources are the guides written by Ball (available in bookstores, some grocery stores, many hardware stores, and from Amazon), such as:
    - The *Ball Blue Book: Guide to Preserving,* 37th edition (200 pages) (2014)*;* or
    - The *Ball Complete Book of Home Preserving: 400 Delicious and Creative Recipes for Today* (larger – 448 pages – and more expensive), published in May 2015.
- Another excellent resource is the USDA Complete Guide to Home Canning, 2015 Revision. You can download the entire book from the National Center for Home Food Preservation web site, at http://nchfp.uga.edu/publications/publications_usda.html. There is no charge.
- Finally, the National Center for Home Food Preservation at the University of Georgia has an excellent web site which includes a list of approved publications useful for home food preservation. They can be reached at http://nchfp.uga.edu/.

These resources will tell you everything you need to know about food preservation. The directions all of them offer are clear and have been tested for safety, accuracy, and palatability. They should be followed explicitly, especially when canning.

Photo by Rain Rabbit, licensed under Creative Commons, at https://www.flickr.com/photos

By Lina Burton, Extension Master Gardener

Grafting Tomatoes - Making tomatoes great!

Photo by Margaret Roach Photo awaytogarden.com

Humans have been grafting plants for 3,000 years, ever since nomadic tribes stopped wandering and learned how to graft fruit trees to improve yield. We all know about grafting finicky grape varieties onto more-vigorous grape plants. But have you heard about the grafting of tomatoes? Experiments in tomato grafting took place here as long ago as the 1930's, but recently grafting has become a booming business. What IS a grafted tomato and why would you want one?

Grafting is simply the fusion of plant parts of two separate plants so that the vascular tissue bonds together to become one plant. The shoot piece or bud from the donor plant is called the scion and it will grow to become the top part of the new plant. The plant that receives the scion is called the rootstock and it will provide the root system for the new plant.

While there is something of a "Frankenstein's Monster" aspect to grafting, it is NOT genetic engineering. The top of the plant maintains its own genetic characteristics and the rootstock likewise remains genetically the same. So why do it?

Grafting allows for the combination of the best aspects of two varieties. In tomatoes, we choose as the scion, or top, a tomato that perhaps is very delicious but lacks disease resistance and produces few tomatoes. For the rootstock, we choose a plant that is very robust and is resistant to soil-borne diseases. The robustness of the rootstock also provides improved resistance to stress (heat, chemical) for the plant.

Loudoun County Extension Master Gardeners have been experimenting with grafting tomatoes for a few years now, continuing to improve our success rates, hoping to one day produce enough to sell at our spring Plant Sale and the Flower & Garden Show. This year, we are growing Purple Cherokee tomatoes as our scion. This variety is one of the best tasting tomatoes, but it is an heirloom that is not disease resistant and has very low productivity. For our rootstock, we have chosen Maxifort, a very vigorous tomato that, if left to grow to maturity, will produce small, green, hard, awful tomatoes. But Maxifort offers resistance to the soil borne diseases fusarium wilt, verticillium wilt, and Southern blight (not early blight or late blight- these are not soil-borne diseases). This disease resistance is very important for greenhouse growers and/or farmers who cannot rotate their crops as disease pathogens build up in the soil.

More important to us, though, is that Maxifort is **extremely** vigorous. It produces a huge root system during our growing season and it provides for vigorous plant growth in the scion. Planted side-by-side with ungrafted Cherokee Purple in our Demonstration Garden, the grafted plant stems are twice the diameter of the ungrafted. We have observed much larger individual tomatoes as well as at least twice the production, while the taste is, of course, the typical Cherokee Purple.

But grafting can be a little tricky to carry out successfully. One common way to graft is to slice the stem of the rootstock, below the cotyledons (seed leaves), at a 45 degree angle with a sharp razor blade. A silicon clip is attached to the rootstock and the scion top, also cut at a 45 degree angle, is slid into the clip until it firmly connects with the rootstock. Now, here is the tricky part. The grafted plant must now be placed in a healing chamber so that there is no stress on the graft union while it is trying to repair the cut in its vascular system.

Photo by Barbara Arnold

A healing chamber is simply an area where humidity, light, and temperature can be controlled. For the first 4 days of healing, the plant wants no light at all, humidity of 80-90 percent, and temperatures between 70 and 80 degrees. After 4 days, the humidity will be slowly lowered and the light slowly raised. Hopefully after one week, the plant can be removed from the chamber to a cool room and can be further hardened off before planting it outside.

Photo by Barbara Arnold

All the care and time involved in producing a grafted tomato plant is why they are so expensive. In seed catalogs you can find grafted plants for $8-9 each. Arguably, if you get double the productivity in the same garden space, the cost is worth it. You can find grafted cucumbers, eggplants, and cantaloupes these days. You can even find plants that are potatoes on the bottom and tomatoes on the top! These are called French fries and ketchup.

If we are successful this year, you may be able to find grafted Purple Cherokee tomatoes at our booth at the Leesburg Flower & Garden Show, April 16th and 17th. Hope to see you there and sell you a grafted tomato!

References:

- Grafting for Disease Resistance in Heirloom Tomatoes, North Carolina Cooperative Extension Service, http://content.ces.ncsu.edu/grafting-for-disease-resistance-in-heirloom-tomatoes
- Ohio State University. Grafting of tomato plants video. https://www.youtube.com/watch?v=tHnOYcI6B44
- Grafting Tomatoes: A Beginners Guide to Grafting Tomatoes, http://www.rodalesorganiclife.com/garden/grafting-tomatoes
- Ohio State University, grafting videos, http://www.oardc.ohio-state.edu/graftingtomato/grafting-methods/index.html

Barbara Arnold, Extension Master Gardener

The Raised Bed Garden: Preparing and Planting in the Spring

(The third in a series of seasonal articles about gardening with big containers)

As promised in the last issue of the Trumpet Vine, this installment on raised bed gardening focuses on working the soil for planting and weighing where big containers might have a place in your garden.

Is It Time Yet?

Late March and early April: that's the time to plant cool weather vegetables. Peas are famously planted on St. Patrick's Day. Until at least the middle of March in much of Loudoun, gardening with raised bed containers is confined to reading the seed catalogs, ordering seeds and planning the garden layout. But, once the ground is defrosted and no longer soaked with water, grab a handful of soil: if it remains a lump when squeezed, then it's time to prepare the soil.

Preparing the Beds for Planting

- Rake out any weeds or plants left from the prior year. If all plant material was removed in the fall and a cover crop was planted like buckwheat or clover, plow it under as a green fertilizer.
- Add more material, preferably composted manure and leaf mulch. If this is not the first year for the boxes, the soil may have settled, so adding a bag or two of each material may be wise to raise the planting level. I recommend that you work the new material in with the existing soil.
- Most early plants can be started from seed sown directly into the beds. But, before you sow, think about when the summer plants will be planted and calculate how long a 'season' you will have for the cool season vegetables.

Raised bed with worked soil ready to plant. **Photo By: Eileen Swicker**

Picking the Right Cool Season Veggies to Plant in Your Raised Beds

Several considerations come into play when choosing what to plant in a raised bed. After all, it's limited territory and we have a short cool season to work with in Loudoun.

Given these two constrains, I recommend against planting large cool season vegetables such as cabbage, cauliflower and Brussels sprouts in raised beds, because they take up too much space. I also recommend against occupying the valuable bed space to plant perennials such as horseradish, rhubarb and asparagus, as they can be better located in their own permanent sites.

Here's a guide to what reaches maturity and "pick-a-bility" most quickly:

- Radish, lettuces and arugula, which will bolt when the weather gets warm
- Spinach, mustard and other leafy green cool season plants like varieties of kale
- Root brassicas like turnips and rutabaga
- Kohlrabi, although it grows better if started indoors and set out as a plant
- Onion sets, which can be planted in spring for summer harvest

- Shallots can be started in spring, but plan on leaving them in the ground until at least June to reach a good size

Raised bed with garlic started last fall.
Photo By: Eileen Swicker

Advice on Garlic

Garlic is a particular favorite. In Loudoun County, where we are Zone 5 or warmer, garlic will grow bigger if planted in the fall (Halloween in particular) and left in the ground over the winter.

It is possible to plant garlic cloves in early spring, but the 90 day growing period may result in harvesting smaller heads of garlic to free the bed for the next season's plants. Also, garlic started in the spring may rot if the soil stays wet and cold for too long.

Coming Up in Part 4

The final installment of the series will publish in the Summer 2016 Trumpet Vine and will cover using the raised bed containers to grow the archtypical summer vegetables like cucumbers, tomatoes and peppers.

Your questions are welcome and answers will be published in the next issue of the Trumpet Vine.

Eileen Swicker,
Extension Master Gardener

Answer to Reader's Question:

"What lumber is safe to use for pressure treated wood?"

A Trumpet Vine reader asked if pressure treated lumber was safe to use in building raised boxes for vegetable gardening. In Part 2, I had written about using pressure treated lumber to build the boxes.

Wood treatments to increase resistance to bugs and fungus have been around for centuries. While it is always preferable to use natural rot resistant wood such as cypress, redwood or red cedar, there are safe treatments for woods to make them rot resistant. The really bad stuff—coal tar creosote—is still used on rail road ties and utility poles. Another early favorite—combining arsenic and copper— has not been used by the wood industry since 2003. Studies have been done to determine the extent of leaching into the solid; for more information, go to Virginia Tech's publications on raised bed garden containers. (www.pubs.ext.vt.edu/426/426-020/426-020.html)

A Veggie Garden with a Flick of the Wrist

Is it fair to say that some of us may harbor a love/hate relationship with our vegetable gardens? We love providing our families with a steady supply of homegrown produce. But the planning, the planting, and the constant weeding? Not so much. There's a new product available that aims to change that called the Seedsheet and it's just what the name implies, a sheet of weed-suppressing fabric embedded with carefully spaced pods of organic soil and non-GMO seeds. An agricultural paint by numbers, if you will. Just roll it out and secure it over a prepared bed or planter, water, and voila, you're on your way to a weed free garden.

Unrolling the seedsheet
Photo Courtesy Seedsheets.com

Tending the seedsheet garden
Photo Courtesy Seedsheets.com

The Seedsheet is the brainchild of Vermont entrepreneur Cam Mackugler. He says he got the idea in 2013 after house-sitting for friends, who paid him with fresh veggies from their garden. Mackugler knew nothing about gardening but he was hooked, and set out to make growing produce easy and accessible even for people like him. Seedsheets are sold online and come in a variety of sizes and selections, including herbs, veggies, flowers and fruit. Just plug in your zip code and you'll be shown varieties grouped by compatibility and specially chosen for your growing area. Sheets range in size from a 1X3 window box size to a full-blown 10X16 garden, complete with walking path, that could easily feed a family all summer. There are several groupings to choose from with catchy names, like the Smoothie Seedsheet with carrots, cucumber, kale, parsley and spinach, and the 4' round Pizza Seedsheet that includes arugula, basil, jalapenos, Moskvich tomatoes, parsley, and peppers.

Wendy Hiller and a team of fellow Loudoun County Master Gardeners had a chance to see the product first-hand recently at the Mid-Atlantic Nursery Trade Show in Baltimore. "Although I would not use them to create my own garden, they are targeted at new gardeners who are strapped for time and are looking for a turn-key solution," says Hiller. Nonetheless, she was impressed with how the landscape fabric was used to best effect. "What I liked most about the seedsheets," she says, "is that when planted, there is no gap between the fabric and the plant. In other words, you don't have to put down the fabric, cut an X into it, plant the seeds in the X, and watch the weeds grow up in the X, too."

For the seasoned gardener the drawbacks may seem obvious. Vegetable varieties are preselected, so you can't grow your favorites. And you can't really stagger plantings, to get a continuous supply of fresh greens for example. But for those who don't have the time or the inclination to plant and weed, or for those who don't feel they have the know-how, this may be a good solution.

Seedsheets have not been tested by nor are they endorsed by VCE Master Gardeners. But this is one Master Gardener who might just give it a try.

Nancy Caldwell, Extension Master Gardener

Under Appreciated and Little Used Root Vegetables

Are you planning or dreaming about your vegetable garden and do you have room for vegetables that you have never tried. Do you try to raise a new vegetable every year or do you stick to the tried and true vegetables like tomatoes, peppers, squash and green beans? Some of the vegetables known as the root vegetables are under used and underappreciated. Many of us are familiar and have used the more common root vegetables such as carrots, beets, turnips and Daikon radish. But how many of us have eaten or raised root vegetables such as celeriac, rutabaga and parsnip? These root vegetables were raised by our grandparents and great-grandparents who were living on the farm. These were some of the vegetables that were stored in the root cellars to be eaten during the winter months.

Celeriac

This vegetable is also known as celery root and yes, it is in the same family and the leaves look similar to the common celery that we know. However, it is the bulbous turnip-like root that is commonly used. It grows partly below-partly above the ground. It is about the size of a large turnip except it is knobby and tan. It is delicious boiled, sliced, raw or used in salads. Plants need to be started in March inside under grow lights. Be patient with germination because the seeds could take 2-3 weeks to germinate. Plant seedlings, after being hardened off, in late May or early June. At time of planting consult the seed packet to determine spacing of plants and rows. From time of planting outside to harvest will take about 95- 120 days. The plants may have a tendency to grow on more than one stem so trim back the growth to leave just one stem. As the plants grow, keep them evenly watered. Insufficient moisture can cause the edible root to be tough and woody. Celeriac plants are heavy feeders so they will benefit greatly with a side dressing of compost tea when watering. Also as the root develops, mound the soil up around the root to prevent it from drying out. This will also help blanch the exterior of the edible root. In the fall when the root is 3"-5" in diameter and when the leaves start to turn yellow, harvesting can begin. Store in a cool place. Celeriac is delicious raw, eaten by itself or used in salad. It has an earthy flavor to it, much like a water chestnut. Or it is also delicious cooked with a little butter, salt and pepper. Or if you have a favorite potatoes-au-gratin recipe, they can be sliced and used in place of the potatoes. Just be aware that raw celeriac can discolor so mix a little lemon juice with water and place the celeriac in the solution to prevent the discoloration and then use it as desired.

Celeric
by msjoannashaw

While celeriac is very low in calories it contains many anti-oxidants, vitamin K, phosphorous and B-complex vitamins.

Rutabaga

Rutabagas are only called rutabagas in the U.S. Throughout the rest of the world, they're known as swedes, and many think it originated as a cross between a cabbage and turnip. If you buy it in the store, it will very likely come with a waxy coating to help with storage and to help prevent drying out. There are many ways to use the flesh of rutabaga and it is often added to vegetable soup that is home made. Seeds can be planted directly in the garden in late spring or early summer in well-drained soil that has had compost or leaf mold added. Plant the seeds about 1/2" deep with about 6 seeds per foot. In case the germination is less than 100%, this close spacing will give a final spacing of 6" apart when the plants are thinned. Germination will take 3-5 days. Thinning of the seedlings should take place by the time they

Rutabaga
Image via muffintinmania.com

are 2". Flea beetles can be a problem so floating row covers are recommended. Like celeriac, rutabagas are heavy feeders and need a supply of potassium and phosphorous. These nutritional needs can be met by side watering with compost tea. Harvesting of the rutabagas will be about 90 days from the time of planting. Rutabaga will withstand a frost and frost actually improves the flavor but harvest the entire crop before a hard freeze.

Rutabagas are brassicas or crucifers and like all crucifers are high in antioxidant compounds. Rutabaga's most significant nutrient comes from vitamin C. One cup contains 53% of the daily recommended amount. Beta-carotene-rich rutabagas are also an excellent source of potassium and manganese, and a good source of fiber, thiamin, vitamin B6, calcium, magnesium, and phosphorus.

Parsnip

Parsnips have a sweet, nutty flavor and are wonderful sliced and cooked in a little butter by themselves, combined with carrots (use butter) and a little maple syrup, mashed as one would white potatoes, added to stews and even made into parsnip pancakes. Like rutabaga when they are bought in the store, they will often come with a waxy coating. Remove the coating and then scrub well; they do not need to be peeled as carrots, although if you wish to, that is certainly possible. There are many recipes that can utilize this vegetable that has been pushed out of favor. A well grown parsnip is a delight. If your first experience has been a parsnip that does not have much flavor or is woody, don't give up. Some parsnips that are sold in the stores have not been raised to have had several hard freezes before they are harvested. It is the hard freezes that bring out the sweetness in parsnips. If you have space in your garden to plant a crop and then forget about it until the winter time, then parsnips are for you. Plants can be left in the ground and dug in December and January and even into February. Nothing beats being able to harvest something in your garden in these winter months and you will be richly rewarded with parsnips that have a wonderful flavor. When you leave them in the ground like that just put a layer of straw over them. To plant parsnip seeds, make sure that you buy new seed every year. They are one of the few seeds for the garden where it is highly recommended that you do not store seeds from year to year. Parsnips resemble a large buff colored carrot and need a well worked soil. A trench can be dug so the roots have the ability to grow deep into a loose soil. Seeds should be sown 1/2" in depth with each seed about 1" apart. Plant early in April. The seed is dormant when planted and so the cold soil actually awakens the seed from dormancy. The seed is notorious for taking a long time to germinate. Keep the soil moist or the seedlings will have a difficult in breaking through the crust of soil. Some old timers would use radish seed not only to mark the rows but also to break any crust on the soil thus making it easier for the young parsnips to emerge. When the seedlings are about 1" high, thin the plants. The final distance of the parsnip plants should be 8"-12" apart. This spacing will produce larger parsnips.

Parsnips
San Diego Master Gardener Assn.

Parsnips are an excellent source of soluble and insoluble dietary fiber. They also contain anti-oxidants, vitamin C and B-complex vitamins.

Even if you cannot raise these root crops in your own garden, they are readily available in the stores. If you have not tried them, be adventuresome. The following recipes are included to give you the needed incentive.

Curried Rutabaga Soup

(recipe from "Fresh Ways with Vegetarian Dishes" by The Editors of Time-Life Books)
1 tbsp. safflower oil
1 medium onion (about 4 oz.), chopped
3/4 lb. rutabaga, peeled, cut into 1/4 inch dice
6 oz. parsnip, scrubbed or scraped, cut into 1/4 inch dice
1 small red pepper, seeded, cut into 1/4 inch dice
1 small cooking apple (about 3 oz.) cut into 1/4 inch dice
3 tbsp. brown basmati rice or long grain brown rice

1/2 tsp. medium hot curry powder, 1/2 tsp. ground coriander, 1/4 tsp. ground cumin, 1/8 tsp. ground turmeric, 1/8 tsp. ground ginger, 1 garlic clove crushed, 1/2 tsp. salt, 1 1/4 cups tomato juice, 1 quart unsalted vegetable stock, 2 tbsp. golden raisins, 2 1/2 tbsp. unsweetened shredded coconut, toasted.

Heat the oil in a large, heavy-bottomed saucepan or flameproof casserole and cook the onion, rutabaga and parsnip over medium heat for five minutes. Add the red pepper and cook for two to three minutes more, stirring occasionally. Then add the apple, rice, spices and garlic and cook, stirring constantly, for two minutes. Finally, mix in the salt, tomato juice, stock and golden raisins and bring the mixture to a boil. Lower heat to a simmer, cover the pan, and cook the soup for 30 minutes. Just before serving, stir in the coconut. Serves 4.

Parsnip Cakes (Patties)

(recipe from "The Spice Cookbook" published by David White Company, New York)

2 cups mashed, cooked parsnips 1 1/2 tsp. salt 1/4 tsp. ground black pepper

1 tsp. sugar 1 tsp. paprika 1 tsp. lemon juice 1 large egg 1/2 cup fine, dry bread crumbs

Combine the ingredients. Mix well. Shape into 2 1/2-inch patties 1/2 inch thick. Dip in flour. Sauté in your favorite oil, turning to brown both sides. Serve hot.

Kristin Westfall, Extension Master Gardener

THE HERB REFERENCE: Thyme *(Thymus vulgaris)*

Thyme is an herb favored by gardeners, herbalists, and cooks. Gardeners love the fragrant, tiny, purple to white flowers, as well as its neat growing habit. It is often used in or along stone pathways and borders. Herbalists treasure thyme for its medicinal purposes, thanks to its rich volatile oil, thymol. Cooks consider thyme a must-have herb in the kitchen. It is a classic culinary herb, used in everything from soups and sauces to complementing any kind of meat. As a beekeeper, I have noticed that honeybees find thyme irresistible, and produce a delicious honey from its nectar.

History of Thyme

It has been well documented that thyme has been a multipurpose herb, used for thousands of years. As far back as the 1st century, the Romans and Greeks used it medicinally in poultices, teas, baths, and massage oils. Throughout time, it has been used to cure ailments of every kind, and even as an embalming agent in ancient Egypt, to ensure passage into the afterlife. History also suggests thyme has magical and spiritual virtues. The origin of the genus name Thymus is thought to be derived from the Greek word *thumus*, which means courage. This may explain why it was often used by the soldiers of the Greek and Roman armies, in their baths and rubbing oils.

Growing and Harvesting Thyme

There are dozens of species of thyme. All are low growing perennials, with tiny leaves. The flowers range in color from white to purple. Thyme grows best in dry conditions kept warm by a full sun. The soil should be well-drained (a bit gritty) and, I repeat again, dry. It prefers a neutral pH (7.0). This herb can be started by seed in the spring. My personal choice is to give them a little head start by starting seeds indoors under grow lights, or in the greenhouse, if you are lucky to have one. Propagating by cuttings or division works well too. It is easy to grow.

Thyme Photo WikiMedia Commons

Fresh thyme can be used throughout the entire summer. You can cut off sprigs to be used whole, or use the leaves by pinching the tip of the stem with your thumb and forefinger, then sliding them down the stem, popping off the leaves. When the plant begins to flower, it is time to begin drying the herb. (Peak flavor is just before blooming, if you are on top of things.) After the dew has dried in the early morning, is the best time to harvest. Cut off the top one-third of the sprigs from the plant and tie them at the cut end, into bundles. Hang the bundles upside down in a dry, well-ventilated location, out of the light. Once the leaves are completely dry, which may take a week or more, slide the leaves off the stems. Store them in an air-tight container, placed in a dark location. Light and/or moisture will degrade the herb's flavor.

If it is looking like a cold winter is ahead, I will protect the thyme in my garden by covering the plants with pine boughs in the late autumn.

Thyme is a perfect addition to every garden. Not only is it a must-have in our kitchens, it also makes a wonderful tea that helps relieve coughing and sore throats, thanks to the thymol found in its tiny leaves. *However, medicinal doses are not recommended during pregnancy, because thyme oil can be a uterine stimulant.*

For those who haven't grown it, I highly recommend thyme.

Karen Olgren, Extension Master Gardener

Pest Spotlight

Hitch-hiking Pests: How to Avoid Bringing Home Unwanted Guests to Your Garden

The increasing role of invasive insects in our daily lives is certainly one we as home gardeners are all too familiar. Just the words, "Stink Bug" are enough to get an hour long conversation going at meetings! Asian Multicolored Ladybugs, BM Stink Bug, Crazy Ants, Emerald Ash Borer, Little Brown Apple Moth, Kudzu Bug, and Spotted Winged Drosophila are just of the few current invasives that have been successful in riding along with plant material from one place to another. Additionally, there are plenty of ways to accidently transport pests that are all too common--such as aphids, whiteflies, mealybugs, and thrips--into your home that can ramp up the amount of time you spend on "bug patrol" this season.

Female Pink Hibiscus Mealybug- David Hall, USDA, Agricultural Research Service. USDA. ARS. Image Gallery

Now that no more snow is predicted and spring is around the corner, fingers crossed, many of us can't wait to get to work planning this year's garden. Now that we know many of the undesirables mentioned above can travel home with our purchased plant material, we all can and should do our part to prevent the spread. By taking the time to do a few preventative measures and checks, we can all be sure to leave hungry pests behind.

Avoiding Pests 101

- Local Pest Threats
  The first step is to educate yourself on the DC Metro Area's current pest threats. The USDA provides a great website, http://www.invasivespeciesinfo.gov/ that provides information on pests by state. This is particularly handy for those of you who may purchase plants and trees from a distance.
- Not Just in Plants!
  It doesn't have to be a plant or tree to have a pest! Be sure to take the time to check any fruit, seeds, or leaves you may receive as these could be harboring eggs or larva.
  Pests can also be found in recently destroyed plant material such as firewood or mulch. Avoid moving these over the state border (or county, for that matter) to slow the spread.
- *Certified* Nursery Products
  Buy only *certified* nursery products when available. This usually signifies that the nursery is a reputable source and monitors their pest situation regularly. They have probably made an agreement with State and National agencies to comply with regulations regarding to pests.
- Native Plant Nurseries
  Native plants from a native plant nursery have had less time to travel and pick up pests from other material. Local plants tend to be more resilient to our native pests and are less likely to be done in by a small infestation.

Prevent, Monitor, Conquer

Now that you are on the lookout, its time to purchase those plants! Here are a few tips on how to shop, how to plant, and how to monitor to ensure that no one gets into your yard for free!

Loupe-triplet lens. Jpg By Adamantios via Wikimedia Commons

- Make Use of Your Hand Lens
  A hand lens is a fairly inexpensive tool that can really be the Home Gardener's best friend in combating pests. Don't be afraid to whip it out at the nursery! Be sure to pay extra attention to the underside of leaves and stems, as many common pests like borers and aphids tend to favor these out of sight regions.
- Keep Up the Good Work
  Just because you made it home without seeing anything suspicious, doesn't mean there isn't still trouble lurking around the bend! Spend some time examining your new plants once they are already in the ground, as several species may insert eggs into the plant or soil that may not show activity until later.
- Plant Carefully
  When is the last time you gave your planting tools a good cleaning? Sterilizing tools between use, and especially going from plant to plant, can really help with not spreading around soil pests and fungal disease.
- Be A Good Neighbor
  Use the above advice when exchanging plants with neighbors, friends, and at plant sales! Passing along information is a great tool for slowing the spread of pests in our area.

Practicing awareness is the best tool a home gardener can have in preventing unwanted pests. Now that you have the tips and tricks, be sure to put them to practice as you start getting your garden ready for the season.

Amanda Rose Newton, BCE Entomologist and Extension Master Gardener

Seeking Glorious Natives for Your Garden

In recent years there has been increasing mention of the serious need for more native plants in the cultivated landscape. That is, private cultivated landscapes, including our very own gardens.

Natives such as oak, eastern redcedar, Virginia creeper, and partridgeberry already do pop up here and there without human intervention, but then get protected when we try to free them from the grasp of invasives as best as human effort could. Sometimes we find desirable seedlings in random parts of our properties, just waiting to be relocated to more suitable spots. We sometimes do, but do we need to do more? Yes, we should! We should do what we can as gardeners to help the desirable natives remain the dominant flora in our natural environment.

The reasons why are far-reaching, but one simple explanation is this: Native flora have many social, cultural and economic benefits to the human population, in addition to providing food and shelter to native wildlife and organisms that in turn benefit the health of our environment as a whole. So are we ready to do our part?

A good start is to know which plants are native so we can seek them out specifically. For initial guidance, check out the handbook, "**Native Plants for Northern Virginia**," http://www.plantnovanatives.org/nova-native-plants-1.html. It is put out by the *Plant NoVa Natives Campaign*, www.plantnovanatives.org, a partnership of local organizations promoting the use of NoVa native plants in urban and surburban landscapes across the region.

On the cover of the handbook is the beautiful and easily available native trumpet or coral honeysuckle (*Lonicera sempervirens).* It was 2014 Wildflower of the Year.

NOTE: This is where extra learning matters. This desirable native honeysuckle may be related to the non-native white/yellow-flowered Japanese honeysuckle (*Lonicera japonica)*, but undesirable Japanese honeysuckle is invasive, its dense rampant growth crowds and also girdles trees and shrubs around it, blocking the sunlight from their leaves and cutting the flow of water through them that then could kill them, thus threatening the balance of ecosystems.

The native on the other hand helps maintain the natural eco-balance while benefitting butterflies, birds, hummingbirds and beneficial insects. It is a matter of choice, your choice.

The native plant campaign goals include increasing the availability of Northern Virginia native plants in retail nurseries throughout the region. And there you go! In your own time, you can learn which plants to consider based on a quick handy guide to browse, and once you have made your selection, you can feel nearly confident you can find it for sale nearby. If not readily available, you can contact local nurseries who would understand what you seek and proceed to try fill that need. There is symbiosis all over, as it is.

Availability of an extensive selection of native plants may not yet rise to the level of big-box store ubiquity, but local availability has been getting more reliable. As long as you know what to look for (demand and supply comes to mind), there should be a path to acquiring that desired native plant. In one nursery, for example, the plants may be marked by noticeable individual signs as you walk down the aisles. Another may have an assigned section specifically for natives. One may have a notation on the labels only. However differently natives are identified in the interim, the challenge is for the gardener to be sufficiently informed or guided for the search.

Are you familiar with all *Asclepias* (*incarnata* and *tuberosa,* specifically) (swamp milkweed and butterfly weed) being desirable natives and the lifeline of endangered monarch butterflies? It is good to plant as many of them throughout your garden in spots where you would not mind the leaves being raggedy after the monarch larvae

have gone through their lifecycle stages on them. Yet, how can one not admire the jade-like chrysalises that hang from the stems near the end of that voracious larval lifecycle?

Asclepias incarnata (Swamp Milkweed) visited by adult Monarch

Monarch larva and chrysalis

Courtesy of Words4It Blog by Douglas Alden Peterson

Asclepias tuberosa (Butterfly Weed)
From Native Plants for NoVa handbook

Baptisia australis (Wild Blue Indigo)
Being enjoyed by bees

How about *Baptisia australis* (blue wild indigo) and *B. tinctoria (*yellow wild indigo*)*? They are gorgeous natives when mature and densely lush, and they have long tap roots that make them drought-tolerant. Bees and butterflies enjoy the pea-like blooms, as seen in the feeding bumblebees in the photo.

Box turtle Photo by Maria Daniels

The ephemeral *Podophyllum peltatum* (mayapple) and box turtles (*Terrapene carolina)* help each other when new mayapple colonies are established away from existing plant colonies by box turtles that eat the fruit and then drop their seeds elsewhere. And for kid-friendly gardening, box turtles are a bonus. An objection against non-natives is that they threaten the integrity of natural ecosystems and the sustainability of flora and fauna in their natural habitat.

Alongside the mayapple, the following are more native perennials/annuals and their symbiotic relationships with nature's very important pollinators on display: *Fragaria virginiana* (wild strawberry), *Geranium Maculatum* (wild geranium or spotted geranium), *Helianthus angustifolius* (narrow-leaved sunflower), *Penstemon digitalis* (beardtongue), and *Rudbeckia fulgida* (black-eyed Susan or orange coneflower).

Mayapple

Wild Strawberry

Wild Geranium

Sunflower

Beardtongue

Black-eyed Susan

All photos except the sunflower (photo by M Daniels) are from the Native Plants of NoVa Handbook.

Beyond the dainty perennials that produce the blooms for pollinators are the more permanently placed native shrubs and trees that gardeners acquire for the long term—as property investment and increasingly as an investment on behalf of environmental sustainability. This is when the search and acquisition becomes more challenging yet more fulfilling when the responsible choices are found and planted in place.
For example, for wet and swampy areas are *Cephalanthus occidentalis* (buttonbush) and *Itea virginica* (Virginia sweetspire). For dry shade are *Physocarpus opulifolius* (ninebark) and *Viburnum prunifolium* (blackhaw). For edible berries are *Aronia arbutifolia* (red chokeberry) and *Aronia melanocarpa* (black chokeberry). For decorative blooms are *Clethra alnifolia* (sweet pepperbush) and *Kalmia latifolia* (mountain laurel), and for fragrance are *Rhus aromatica* (fragrant sumac) and *Hamamelis virginiana* (witch hazel). These are just some desirable native shrubs that are easily available in local nurseries and garden centers.
With the handbook as initial guide, seek out these native treasures for your own garden and make a difference!

Buttonbush

Red Chokeberry

Mountain Laurel

Witch Hazel

Maria Daniels, Extension Master Gardener

Willow: Environmental "Workhorse"

Willow has been praised for thousands of years by many cultures for its aesthetical, spiritual, and healing qualities and its ability to both filter out water pollutants and prevent soil erosion. Interest in willow has surged because of an increased focus on water and air quality. The U.S. academic community became seriously interested in willow in the 1980s and 1990s, and studies of its benefits have burgeoned since then. Results from these studies, however, have been slow to gain traction with the general public.

This article is intended to highlight willow's many amazing environmental and ecological contributions, and the ongoing research that might have the potential to benefit us for generations to come.

Photo Credit: Steven J. Baskauf
http://bioimages.vanderbilt.edu

Willow Growth Range: Willow (in the genus of *Salix*) is prevalent in cold and temperate regions of the Northern Hemisphere where soil is moist. There are approximately 400 species of willows, with forms ranging from tree-sized (up to 70 feet under optimum conditions), to multi-stemmed shrubs, to the creeping kind that rarely exceed 4 inches in height. About 100 species of willow are native to North America, of which only 27 attain tree size. Our Virginia native Black Willow (*Salix nigra* Marsh) has multiple stems that can mature to 15 to 30 feet in height. Black Willows are commonly found near water and on flood plains in Virginia and throughout the Eastern United States, although its growth range extends to some parts of Canada and Mexico.

Environmental Benefits: Willow grows profusely at, or slightly below, water level along stream banks and has a massive, fibrous, shallow root system that binds silt and holds soil in place. This makes it extremely effective for erosion control and for trapping pollutants. Contaminates are soaked up by these roots and subsequently degrade. This can prevent metals and other harmful chemicals from entering waterways. Moreover, some pollutants can also be changed into less harmful chemicals by bugs or microbes that live close to the roots.

The USDA deems willow as the superior of the two stream bank erosion and phytoremediation "workhorses" (the other is poplar). As a result, shrub willow typically is among the top vegetation choices for watershed conservation programs.

Ecological Roles: Willow plays a significant role in biodiversity by providing food, living, and breeding space for native insects, birds, and some mammals. Willow blooms early in the spring, providing crucial nectar and pollen to bees emerging from the winter. Bird diversity and density in willow biomass in northeastern states of the U.S. is similar to natural shrub land and forest. According to renowned biodiversity advocate and entomologist Doug Tallamay, willow is ranked second only to oak in the mid-Atlantic region as a host to pollinators such as moths and butterflies and also is one of the top twelve native plants preferred by birds.

Willow nesting habitat
Photo Credit: SUNY ESF

Some domestic grazing animals browse in willow thickets. Moose, elk, and beaver browse on willow leaves in the summer and willow twigs in the winter.

Willow as a Possible Renewable Energy Source: The search for a sustainable alternative energy without the undesirable consequences inherent in fossil fuel use has been a hot topic for a while. To be commercially viable, biomass from annual crops and agriculture leftovers (such as corn, soybeans, grain husks, and pressed sugar cane) requires large amounts of land, water and fertilizers, is thus unsustainable, and is not an improvement over fossil fuels. Shrub willow biomass does not have these difficulties, and with the additional

benefits listed above, is one of the vegetations selected for environmental feasibility and economic studies. While purpose-grown willow biomass is a relatively new concept in North America (dating from the 1980s), it has been a well-established energy solution in Europe since the early 1970s. Today, it is actively grown as a source of energy in Sweden, Denmark, Ireland, and the United Kingdom, with interest spreading to Poland, Germany, Estonia, Asia, and portions of South America.

- Willow biomass is a fast-growing, high-yielding "energy crop" that requires very little maintenance and adapts to a wide range of site conditions, including marginal land.
- Shrub willow planted on marginal farm land can generate income for farmers, stimulate rural economies, and produce numerous environmental and ecological benefits.
- Willow biomass is suitable for making liquid fuels, or burning in tandem with coal. But unlike coal, willow biomass does not produce harmful sulfur or mercury emissions, and releases significantly less nitrogen – which means less acid rain, smog, and other toxic air pollutants.
- Willow biomass — carefully chosen, grown responsibly, and efficiently converted into energy — is considered a carbon-neutral energy source, meaning no additional CO_2 emissions are created in the production and use of the crop.


Photo Credit: SUNY ESF

Ornamental Value: Some willow varieties tolerate dry soils, although this will result in reduced vigor. They also can be planted as an ornamental where a fine-textured shade tree is desired. Willow's gracefulness is legendary and its environmental and ecological benefits deserve attention. Should we therefore encourage property owners to incorporate willows into their landscape? The answer depends on the site. If you own a large piece of land where a stream, pond, river, or even just a wet depression is present, then willow is an excellent choice. Conversely, if you have a small lot you may not want to plant willow as its roots will tend to gravitate to water sources (such as pipes, drainages, septic tanks or building foundations), and could wreak havoc on you and your neighbors.

Here are some growing tips from the Olbrich Botanical Garden in Wisconsin for avid gardeners with small yards:

- Shrub willows are fast growing, short lived plants; therefore they need to be cut back all the way to the ground every 2-3 years (which is not that hard to do for avid gardener with a lopper). New growth will grow to 5-6 feet within a season.
- Shear shrub willow once about half way through the season to encourage lush leaf color.

But Isn't Shrub Willow an Invasive Species? No, it is not. According to the Willowpedia—hosted by the College of Agriculture and Life Science at Cornell University—"there are no *Salix* species on the composite Federal and State Noxious Weeds list." The Cornell website is an excellent source of additional information, please visit http://willow.cals.cornell.edu/.

So, as we have seen, due to its many benefits, willow deserves our serious attention and consideration. Those who wish to mix functionality while maintaining strong ornamental values in the landscape may wish to consider planting willow. Native and nativar willows are hard to find, although worth the search. You are more likely to find them in nurseries specializing in supplies for conservation projects.

Ling Lay, Extension Master Gardener

Notes from the Help Desk:

Q: What are the differences between the American and Purple beautyberry shrubs?

A: Both beautyberry shrubs have long arched branches that can touch the ground when fully loaded with gorgeous purple/magenta colored fruit in the late summer. *Callicarpa americana* or American beautyberry is a native shrub here in Virginia and is hardy from zones 6b to 9. It gets much larger than its related species, *Callicarpa dichotoma*, topping out at 10 feet tall with a spread of about 6 feet. So you need to really plan for this one at its mature size. The American species has larger leaves and blooms on new wood. Pruning it down to 6" from the ground every spring will ensure a heavy load of fruit each fall. USDA fact sheet: Am. Beautyberry.

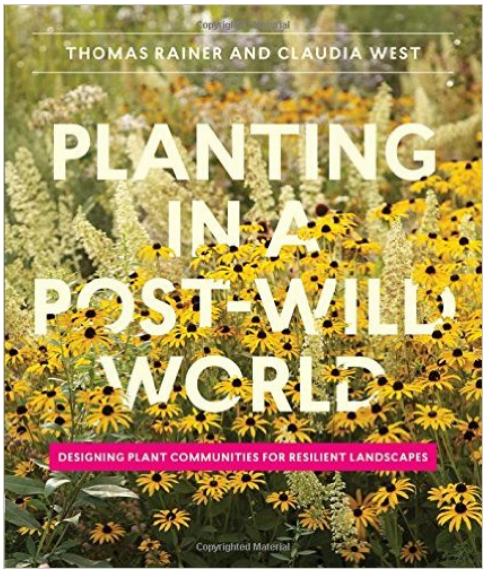
Callicarpa dichotoma, purple beautyberry, is equally as beautiful and is more manageable in smaller landscapes. Hardy in zones 5B to 8, it will do very well in this area. Growing in the same weeping fashion as the American shrub, it reaches 4 feet in height and around 5 feet in spread. The leaves are smaller and closer together on the branch, producing quite a sight with all the fruit. It is not native to America but it is not known to be invasive either. This beautyberry does not need to be pruned to the ground each year, but note that flowers are produced on new growth as well. So pruning down to 6" from the ground will produce a full, more-rounded shape loaded with berries. In my experience, if you do not prune it, the berries fall to the ground and reseed like crazy!

Photo from Missouri Botanical Garden

Barb Bailey, Extension MG

Planting in a Post-Wild World: Designing Plant Communities for Resilient Landscapes

by Thomas Ranier and Claudia West, October, 2015, Timber Press, Available in Hardcopy and Kindle.



Let's let the experts introduce this new best selling landscape book:

"In *Planting in a Post-Wild World*, Rainer and West describe how to translate natural plant relationships and ecological patterns into aesthetically pleasing yet functional landscapes. With their advice we can change gardening from an adversarial relationship with nature to a collaborative one. Expertly researched, and rife with witty advice, this is the universal how-to guide to sustainable landscaping we have all been waiting for. A masterful accomplishment!"
--Doug Tallamy, author of *Bringing Nature Home* and *The Living Landscape*

"A real-world guide for creating beautiful, ecologically connected landscapes. There is not a designer or property owner that would not benefit from their approach."
--Larry Weaner, APLD, founder of New Directions in the American Landscape

"We have driven nature out of our cities – but this need not be a one-way ticket. Thomas Rainer and Claudia West, two leading voices in ecological landscape design, present an optimistic call-to-action dedicated to the idea of a new nature – a hybrid of the wild and the cultivated that can flourish in cities and suburbs. The authors speak with conviction and authority, and offer a practical blueprint for the future."
--*The English Garden*

Thomas Rainer is a horticultural futurist fascinated by the intersection of wild plants and human culture. A landscape architect by profession and a gardener by obsession, he has worked on projects such as the U.S. Capitol grounds, the Martin Luther King, Jr. Memorial, and The New York Botanical Garden, but is happiest puttering in his small garden in Washington, D.C. He blogs at Grounded Design.

Claudia West has an extensive background in horticulture, ecology, and environmental restoration. She is a consultant for North Creek Nurseries and has also worked for landscape architects Wolfgang Oehme and Carol Oppenheimer and for Sylva Native Nursery.