September 2021-Vol.7, No.9

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Growing a Forest in your Backyard

By Cathy Caldwell | September 2021-Vol.7, No.9

Creating a backyard forest is fast becoming "a thing" — for a number of reasons. There's the hope that adding lots of trees will have a mitigating effect on global warming. And I'd be willing to bet that another motivation is Doug Tallamy's vision of an immense "**Homegrown National Park"** consisting of a continent-full of backyards filled with native trees, shrubs and perennials providing much-needed habitat for insects, birds, and other wildlife. You've probably read last month's article, "Gardening to Save the Planet," which explores Tallamy's ideas about restoring lost habitat; if not, you'll definitely want to do so.

If you do a little online Googling on the subject of creating a backyard forest, you will quickly discover two early visionaries of the backyard forest movement: Akira Miyawaki and Shubhendu Sharma. Miyawaki is a botanist who went to India to test his idea that a depleted landscape could be transformed into a forest in a relatively short time by first remediating soil compaction and then by planting closely-spaced seedlings of "potential natural vegetation," i.e., the plants which would naturally occur in that particular place. Sharma, an industrial engineer, volunteered to help with Miyawaki's experiment, and is now the head of a for-profit

A Miyawaki forest in Kerala. Photo: Beman Herish, CC BY-SA 4.0.

company called Afforestt, which provides forest-creation services. To find out more about the work of Miyawaki and Sharma, you may want to watch a TedTalk or two: Shubhendu Sharma: How to Grow a Tiny Forest Anywhere (2014) and How to Grow a Forest in Your Backyard (2016).

The Miyawaki method does not appear to have been widely adopted in the U.S. or other temperate regions, though some experimentation with the method has been conducted in the Netherlands and in England. See Tiny Forest Zaanstad and "First Tiny Forest Being Planted in UK," The Ecologist.org. Miyawaki's ultra-close spacing of seedlings runs counter to the prescribed methodology of forestry scientists in the U.S., but it may yet be adapted or adopted here, though the tight spacing may already have become less viable in our warming climate.

Photo: David Stephens, bugwood.org, CC NC 3.0

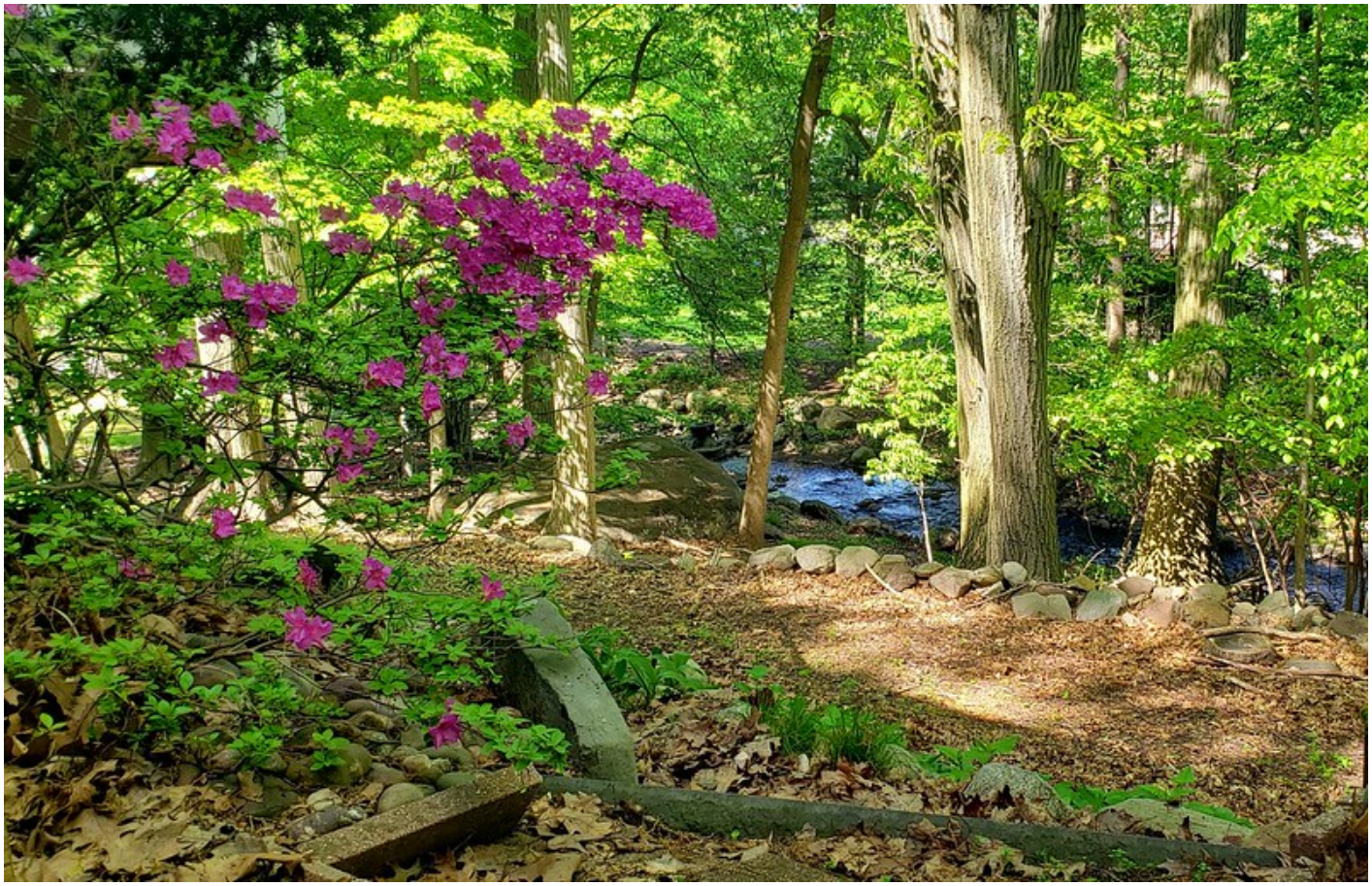
One thing I discovered in working on this article is the shear amount of research being conducted on forest ecology and its interaction with the warming of the planet. For example, **scientists are looking at ways to make plants more drought-resilient**. The role of fungi in enhancing a plant's drought tolerance is the focus of major research. For example, some strains of the most common ectomycorrhizal fungus, *Cenococcum geophilum*, has been found to assist host trees in resisting drought stress. Scientists involved in this research believe that additional study of the genomics of this fungus "should facilitate the identification of drought-adapted *C. geophilum* strains, which can be used to efficiently support their host trees threatened by the forecasted increase in drought periods in many parts of the world." See "How fungi help trees tolerate drought," Science Daily (2016).

If you're interested in growing a backyard forest, you are probably familiar with the benefits of adding trees to your yard. The list of benefits is long:

- Removal of air pollution through particulate reduction and respiration
- Provision of food, protection, and habitat for pollinators, birds, and other wildlife
- Increased oxygen production
- Energy conservation: shade created by trees helps to cool air and reduce the urban "heat island" effect, thus reducing energy use for air conditioning; conifers can screen cold wind.
- Reduction of stormwater runoff and filtration of excess nitrogen and phosphorus in runoff into streams and rivers
- Soil erosion prevention
- Absorption and storage of the greenhouse gas carbon dioxide

That final benefit on the list is worth a comment. By now it's safe to say that most gardeners are well aware of the capacity of trees to store some of the carbon dioxide that we as a society emit through burning coal, oil, and gasoline. Bear in mind, however, that while trees can help mitigate climate change, many — though not all — scientists seem to agree that trees cannot make a large dent in our greenhouse gas emissions. Nevertheless, backyard forests can help to some extent — and they provide other important benefits as well — such as mitigating the effects of our already-warming planet.

Residential trees help to temper the climate and conserve energy. It's worth emphasizing that three or more large deciduous trees on the sunny sides of a house — the south and west sides — can shade it from the summer sun, thus **reducing air-conditioning usage and costs by as much as 30% during the summer**. Conifers planted on the north side of a house will reduce heating costs by blocking winter winds. This past summer has made me keenly aware of the cooling shade offered by my backyard trees, and that's one reason I'm planting a few more.



A cooling backyard forest. Photo: Backyard Paradise, SurFeRGiRL30, CC BY 2.0.

If you're eager to replace some of your backyard turfgrass with a forest, you need to do a bit of planning. First, you need to lay out your site, making sure it won't interfere with other uses in your yard, such as a septic field (definitely no place for a mini-forest) or a play area. How will your new forest relate aesthetically to other nearby land, wooded or not? What's the sun exposure of the site you're considering? Is your soil loamy or heavy clay? Do you have areas that tend to be wet? Have you tested your soil? Once you have answers to these questions, you're ready for the next phase: choosing a method.

Getting from a grass lawn to a forest takes some time, of course. There are several ways to proceed:

- **Plant a few trees and add a few more every year.** This is not the quick way to develop a forest, but it will work just fine. Just be sure to remove enough turfgrass and weeds around your new tree so that its roots have ample room to grow — 2 or 3 feet is best; you don't want your tree to have to compete with the grass roots for water and nutrients. Mulching all around the tree (except right next to the trunk) will be even more important in the hot, dry times ahead.
- **Create planting beds for new trees, using a grass-smothering technique like sheet mulching or solarizing,** and then plant new trees into the mulch. This kind of bed prep takes four to six months at least. **For guidance on sheet mulching** (a/k/a lasagna gardening)**,** read Lasagna Mulching from the September 2020 issue of *The Garden Shed*. **Solarizing** involves covering the grass with plastic, which basically "cooks" the grass and some weed seeds. For details on soil solarization, see "Soil Solarization for Gardens and Landscapes," Univ. of California Cooperative Extension, ucanr.edu/sites/Solarization. Having employed the solarization method once, I'm not inclined to do it again because of the amount of plastic involved. As an alternative to plastic, you can smother your turfgrass with some variation on sheet mulching — such as a 6-inch-layer of wood chips, 4-by-8 pieces of plywood, or a layer of newspapers 20 sheets thick with wood chips on top.
- **Stop mowing**. This no-mow method works well if your lawn isn't compacted and there are plenty of native trees around dropping seeds. Basically, you're sitting back and letting natural succession create a forest. If you have tree seedlings popping up here and there in your yard, it's probably a good candidate for this method. Once you have seedlings coming up, you'll nurture them with mulch, watering, and weeding. To make this method more pleasing to the eye, plant some native wildflowers along the edges, at least until your forest gets rolling.
- **Convert grass to a cover crop like clover or rye, and plant trees *through the cover crop*.** For more information about this method, see Building a Backyard Forest/Maryland Dept.Natural Resources, which is well worth a careful review as it contains lots of helpful information as well as design templates and plant lists to help you choose the right trees and shrubs for your soil and exposure.

Some of these methods involve preparation that can take months, even a year or more. I have a **sheet mulching** operation going on in my yard right now that will take six months. Last spring I layered mulch, newspaper, cardboard, leaves and some kitchen wastes onto two island-shaped sections of lawn. My goal is to plant native trees and maybe a few shrubs in each island bed this fall. By that time, the turfgrass will have been killed and the soil improved, thanks to the "cold composting" of the leaves and other ingredients that I added. For more about "sheet mulching" and "cold composting," see the Lasagna Mulching article in *The Garden Shed*.

Sheet mulching. Photo: Cathy Caldwell

No matter what method you use, **weeding and removing invasives will be essential** — at least for the first several years — for your forest to thrive. Get familiar with the appearance of the common invasives at the seedling stage so you can remove them early. For help in identifying invasives, refer to Blue Ridge PRISM Invasive Fact Sheets. After your forest has a canopy, it will shade out most weeds, and the forest floor will be covered with leaves, which will discourage most invaders.

Choosing Trees for your Backyard Forest

The best trees for your site will depend upon your soil and the sun exposure in your yard. If you're not already familiar with these features, you'll need to do a bit of homework. You'll no doubt want to eventually have several kinds of native trees and native shrubs, and probably native ground covers like ferns. At least one kind of oak is a must if your yard is to be part of Tallamy's Homegrown National Park. As you consider which type of oak will suit your site, keep in mind that all oaks will do well in rich, well-drained soil, but if you have thin or dry soils, scarlet oaks and white oaks are usually the best choice.

Southern red oak. Photo: David Stephens, Bugwood.org, CC BY-NC

There are several excellent sources for choosing native trees well-suited to your site:

- Virginia Native Plant Finder (an interactive site that allows you to plug in variables)
- Right Tree-Right Place Tree List/Tree Stewards (comprehensive and local)
- Piedmont Natives Plant Database/Albemarle County.org (searchable)

Right Tree/Right Place Tree List

	physical characteristics					growing conditions				
Common name	Botanic name	Evergreen	Height	Spread	Crown Form	Hardiness zone	Heat zone	Light conditions	Soil conditions	Drought tolerant
Hickory										
Bittemut	*Carya cordiformis*		60-100	60-100	round	**3-7**		☼	adaptable	
Mockemut	*Carya tomentosa*		60-100	30-50	oval	**4-8**		☼ ✸	adaptable	
Pignut	*Carya glabra*		60-100	30-50	oval	**4-8**		☼ ✸	adaptable	
Shagbark	*Carya ovata*		60-80	35-50	oval	4-8	8-1	☼ ✸	adaptable	✓
Holly										
American	*Ilex opaca*	x	40-50	20-40	pyramidal	5-9	9-1	☼	average medium well drained	✓
Possumhaw	*Ilex decidua*		7-20	5-15	spreading	5-9		☼ ✸	moist, well drained, acidic	
Honey Locust	*Gleditsia triacanthos*		30-70	30-70	spreading	4-9	9-1	☼	adaptable	✓
Hornbeam, American	*Carpinus caroliniana*		20-30	20-30	round	3b-9	9-1	☼ ✸	moist, well drained, acidic	
Kentucky Coffee Tree	*Gymnocladus dioicus*		50-70	30-50	spreading	3b-8	9-2	☼	adaptable	✓
Hophornbeam, American	*Ostrya virginiana*		25-40	15-25	pyramidal	3b-9	9-5	☼ ✸	moist, well drained, acidic	✓
Magnolia										
Magnolia, Southern	*Magnolia grandiflora*	x	60-90	30-50	pyramidal	7-9		☼ ✸	moist, well drained, acidic	
Magnolia, Sweetbay	*Magnolia virginiana*		12-60	12-30	pyramidal	5-9		☼ ✸	moist to wet, acidic	
Maple										
Japanese	*Acer palmatum*		25	30	round - weeping	6-8		☼ ✸	well drained acidic	
Red	*Acer rubrum*		40-60	40-60	round	3b-9	9-1	☼	moist well drained	n/a
Sugar	*Acer saccharum*		70	40	round to oval	3-8		☼ ✸	moist, well drained, acidic	
Oak										
Bear	*Quercus ilicifolia*		12-20	12-20	round	**5-9**		☼	well drained acidic	
Black	*Quercus velutina*		50-60	40	pyramidal - round	3-9		☼	moist well drained	✓
Bur	*Quercus macrocarpa*		70-80	70-80	round	3-8	9-1	☼	adaptable	✓
Chestnut	*Quercus montana*		60-70	60-70	pyramidal - round	6-9		☼	moist to dry well drained acidic	
Northern Red	*Quercus rubra*		60-75	60-75	round	3b-7	9-5	☼	well drained sandy loam, slightly acidic	✓
Overcup	*Quercus Lyrata*		45-50	40-50	round	5-9	8-4	☼	moist to wet loams	
Southern Red	*Quercus falcata*		70-80	70-100	round - spreading	7-9	9-5	☼	adaptable	

A small section of the Charlottesville Tree Stewards' ***Right Tree/Right Place Tree List***

For excellent guidance on tree-planting generally, see the Tree Planting Guide/Charlottesville Area Tree Stewards.

Starting with Seedlings

If you have a large yard and intend to plant more than a few trees, you may want to try the inexpensive bare-root seedlings sold by the Virginia State Forestry Nurseries. For just $2.00, you can buy a white oak seedling! Admittedly, it will be a tiny seedling. The seedlings are either one, two, or three years old, and seedling age is indicated with 1-0, 2-0 and 3-0. The Crimora nursery opens for business in October, and you can buy in person or order online for shipping to your home. Be sure to order in October or soon thereafter for best selection. I recently got in touch with the nursery staff, and was advised that shipping and picking up for 2022 will begin on February 22nd. Early spring is the recommended time for planting these little seedlings so that they will still be dormant when planted.

Serviceberry seedlings bundled for sale. Photo: Katie Grzesiak, Grand Traverse Conservation District, Bugwood.org

Bare-root seedlings start small but within just a few years they will catch up with larger-sized trees planted at the same time. You will need to protect the seedlings from deer, mowers, and weed-eaters for several years with shelters or fencing. For information on tree shelters, see the recent Garden Shed article "Deer, Deer, Deer!

Before you even order tree seedlings, figure out how you plan to proceed once you have the seedlings in hand. It's essential that you be ready to plant them immediately — as in within 24 hours — though it's possible to store them for a few days in the right conditions. You'll want to have your planting site well-prepared, the soil tested, and ready to go by this fall. Have ready the deer guards you plan to use, whether tree tubes or wire mesh tree shelters. For a discussion of the types of guards available and how to use them, see How to Manage Deer Damage on Trees and Other Plants," Univ.Minn.Ext/Netting, Tubes or Other Protective Structures.

Because bare-root tree seedlings are generally employed in large-scale forestry operations, the planting advice is usually oriented accordingly. But you can proceed as you would with any tree — basically, digging a hole large enough to generously accommodate the root system, backfilling soil around the roots, and keeping the root collar at the soil line. For more detail, including illustrations, check out the Forestry Department's Hardwood Planting Guide. If you are planting a lot of seedlings in a large area, you may want to follow the procedure for large scale plantings, as demonstrated in "Planting Bare-root Tree Seedlings in Spring," Penn State Ext., and the accompanying video.

Perhaps you want to create a food forest, which combines edible plants with trees. For an inspiring "big picture" look at forest gardening, watch this short film produced by National Geographic: A Forest Garden With 500 Edible Plants Could Lead to a Sustainable Future. Another source of inspiration is a food forest at George Mason University. In 2012, George Mason embarked on a project to turn a grass lawn on the campus into a food forest employing principles of permaculture. By 2017, the project — called The Innovation Food Forest — was flourishing. According to its website,

> *"Permaculture strives to create a closed loop environment where the outputs for one process become the resources for another. In nature there is no such thing as "waste." The concepts of permaculture are integrated into this space: earth care (taking care of, and restoring, the planet and its resources), people care (providing for food, community, and interactions with nature), and fair share (distributing excess resources)."*

— Innovation Food Forest, George Mason University

The former grass lawn at George Mason now features native trees and many fruit-bearing shrubs and plants, including sassafras, pawpaw, redbud, American hazelnut, persimmon, fig, highbush blueberry, elderberry, raspberry, and many others. You'll want to take a look at the Innovation Food Forest website to see plenty of photos and their plant list.

For a detailed webinar focused on design principles which apply to creation of a food forest in a typical backyard, watch this video: "How to Design a Backyard Food Forest with Permaculture Principles," www.youtube/Utah State Univ. Extension, Even though most of the plants discussed were suited to Utah, there's other helpful content, including design principles and drawings. And be sure to read the recent *Garden Shed* article, Growing Fruits and Vegetables in Your Backyard Forest. If you want to dig really deep on this subject, Oregon State offers an online college-level course: Permaculture Food Forests 101.

American hazelnut (Corlylus americana). Photo: Vern Wilkins, Indiana University, Bugwood.org. CC BY-NC

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September Tasks in the Edible Garden

By Ralph Morini | September 2021-Vol.7, No.9

September is a busy month for committed edibles gardeners. Harvesting, cleaning up spent plants, final planting for fall and early winter harvest and cover crop planting for beds that are finished for the season are all on the docket. We'll review each area to help you plan your actions.

Harvesting

Many summer vegetable plantings will be reaching the end of their productive lives. It is a judgement call on when to stop the harvest and remove plants. It depends on plant condition, pest impact and intentions for that garden space's next phase. Picking when fruits and vegetables are young can help keep plants going a bit longer. Items like tomatoes can be picked before fully ripe to minimize pest damage, while maintaining most "summer tomato" qualities. There are a number of ways to ripen green tomatoes off the vine.

This is also the time to consider how to optimize late season herb harvest. Pinching flowers will help prolong leaf production. Plants can be dug up and potted, cut and rooted to be moved inside, cut for immediate use or preserved by freezing or drying.

Planting

In our local hardiness zone 7a, some produce and vegetables can be planted through mid-September. These include beets, kale, collards, mustard, kohlrabi, leeks, lettuce, radish, spinach and turnips. The earlier they are planted the better since growth will slow as days shorten and temperatures drop.

Simple row cover

Pests like cabbage worms continue to attack brassicas including kale and collards until the first frost. Protecting new plantings with a row cover can minimize pest damage while offering a 4-5 degree temperature benefit and longer growing period after frost. Check out this Garden Shed article for simple row cover construction ideas.

If you have been struggling with pests and diseases this year, a great all-purpose source for identification and treatment options is the Home Grounds and Animals: 2021 Pest Management Guide from the VA Cooperative Extension. Check it out.

Preparing Beds for Winter

If you are finished growing for the year, this is a good time to prepare your beds for next spring. First task is to thoroughly clean up the garden area. Removing spent plant material is essential to minimize wintering-over pests and disease carrying vegetation. It is best to bag and dispose of any plant material that can harbor pests or diseases.

Once cleaned, add organic matter in the form of compost, mulched leaf litter or organic fertilizers, providing decomposition time to make nutrients plant accessible by spring. If you aren't planting a cover crop, mulch beds with an organic mulch like straw, chopped up leaves or aged wood chips

Best practice is to plant a cover crop and keep live roots in the soil year round. Cover crops bring several benefits including building soil structure, reducing erosion and compaction, weed suppression, adding organic matter, and in the case of legumes, fixing atmospheric nitrogen for plant use. There are a couple of basic cover crop choices:

- **Winter-killed cover crops** die out after a few hard frosts, but their root and surface biomass help hold the soil and they can be used as mulches or tilled under in spring. Oats, field peas, oilseed radishes and rapeseeds are common types.
- **Winter-hardy cover crops may** go dormant in winter but resume growth in spring. They should be cut in spring prior to going to seed, with the greens composted, used as mulch or tilled into soil as a green fertilizer. If greens are tilled in, allow 2 or 3 weeks after tilling for decomposition prior to planting. Winter-hardy choices include winter rye, winter wheat, hairy vetch, Austrian winter peas and crimson clover.
- **Mixed Covers:** Regenerative farmers report great results from mixed cover crops that bring diversity to the soil. Check out your options from wherever you purchase your seed. A mix of legumes, root crops, grains and grasses is recommended.

Garden expansion with new beds ready for organic matter additions

If you are planning a new garden or garden expansion for next year, now is a good time to begin preparing your soil. Tilling to remove or bury surface vegetation, adding organic matter and mulching or cover cropping prior to winter will put you in good shape next year. The picture above shows a new garden area. The surface grass in the bed area is turned under to add some badly needed organic matter to the clay subsoil. Adding some organic fertilizer based on soil test recommendations and planting a cover crop this month are the next steps.

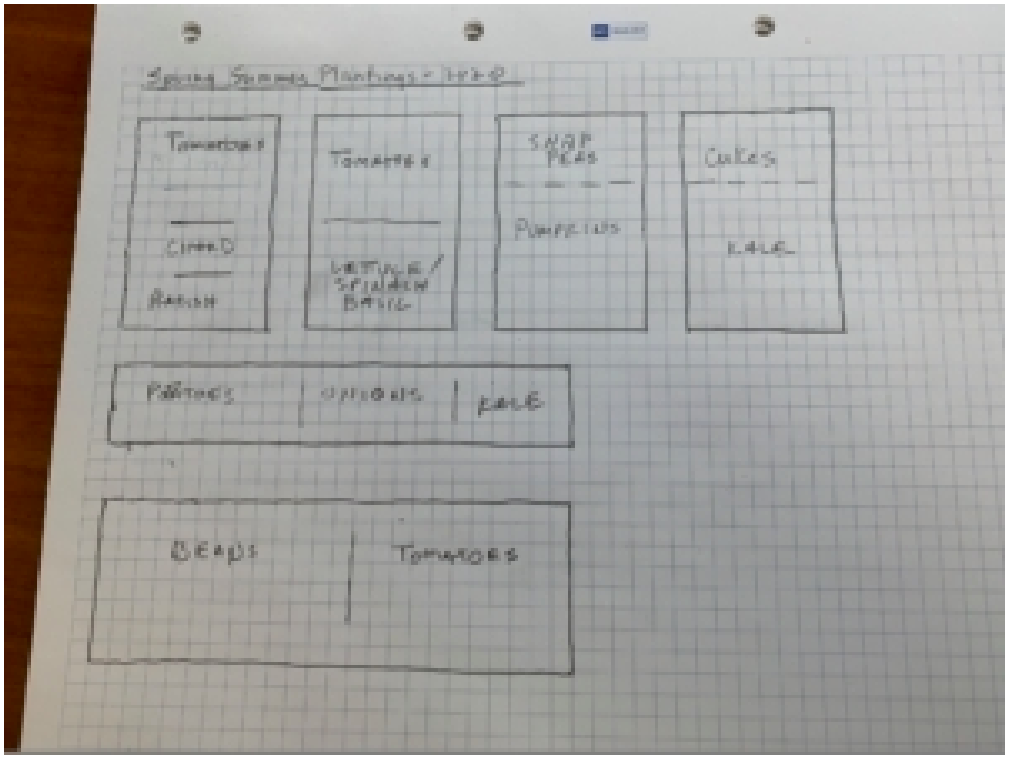
More information on cover crops can be found at this link from the U of Maryland Extension.

General Tips

Garlic is best planted during October. Now is a good time to purchase seed bulbs before local retailers sell out. Internet suppliers offer more variety for experimenters or gourmands. The article Growing Garlic – Fall Planting from the Penn State Extension provides a concise summary of garlic selection, planting and care.

Late August Tomatoes

Give your tomato plants one last feeding. Compost tea or fish emulsion should give them the extra energy they need to make that final push at the end of the season. **Pinching off small green tomatoes and any new flowers** will channel the plant's energy into ripening the remaining full-size fruit.



Journal noting crop locations to inform rotation next year

If you've been lax in your **garden documentation** this year, tour your garden and make notes on this year's varieties, successes, challenges and chores, so that you can learn for next year. Make a sketch showing the location of this year's plants to be used next spring for rotating your crops, an important pest and disease management practice.

Continue to weed your garden to prevent the weeds from going to seed and germinating over the winter and spring. **Keep** the **strawberry patch** weed free. Every weed you pull will help making weeding easier next spring.

Pick pears when green and hard ripe. Store in a cool, dark place to ripen.

Check peach tree trunks and just below the soil at their base for borer holes. Probe the holes with a wire to kill the borers.

Remove two-year-old canes from **raspberry and blackberry plants** at ground level to reduce overwintering of disease. Fertilizers containing potassium, phosphorus and magnesium or calcium can be applied but do not cultivate or irrigate at this time of the year.

Blueberry bushes are usually best pruned after the winter dormant season. Get good advice for blueberry care from this Penn State Extension publication.

Fall weed control around fruit trees is crucial because **weeds act as hosts to overwintering insects.**

Plant lavender seeds in the fall for spring germination.

Whatever you do or don't do, enjoy the fall gardening season. Cooler weather, reflecting on the past season and making preparation for a better next year can be very satisfying. This year, maybe more than usual, our gardens have been a wonderful diversion. See you next month at The Garden Shed.

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Pruning Blueberries in Home Fruit Plantings, Penn State Extension: https://extension.psu.edu/pruning-blueberries-in-home-fruit-plantings

All photos: R Morini

Master Gardener Favorite Tomato Varieties

By Cathy Caldwell | September 2021-Vol.7, No.9

In January of 2021, Piedmont Master Gardener (PMG) Judy Kirby conducted an informal survey of other PMGers. Her question: **What's your favorite tomato variety to start from seed?** Judy reported the results of this "non-scientific" survey to the PMG, and we decided to share it with you, our readers. We couldn't resist adding the favorites of the writers of *The Garden Shed*, whether grown from seed or not.

When all was said and done, the most popular favorites were: **Cherokee Purple** and **Sungold** cherry tomato. A runner-up was **Juliet,** another cherry type. Bear in mind that many of those surveyed grow their tomatoes from seed, so the list contains some varieties not typically sold as plants at your local nursery. **Here's a list of all the favorites,** along with comments from the Master Gardeners who favor them:

Amish Paste grows well in our area and is a heavy producer. It makes fabulous sauce.

Aunt Ruby's German Green is green when ripe, has a large size, and is spicy but with a low acid flavor. This heirloom has a lower resistance to diseases and lower production, but the flavor makes it well worth it.

Barnes Mountain Orange is a low-acid tomato with huge fruit.

Believe it or Not (yes, that's the name, believe it or not!) is productive and good for preserving.

Better Boy hybrids are an easy and tasty variety.

Big Beef is a big favorite for its long period of productivity. A great canning tomato.

Big Boy has a flavor and size that works for all meals.

Big Daddy is another productive tomato that is great for canning.

Black Krim is a dark red-purple tomato with a great flavor.

Husky Cherry Red is an easy to grow great tasting cherry tomato.

Brandywine has a great flavor and good size.

Better Boy and Jamestown tomatoes. Photo: Bill Sublette

Cherokee Purple was a top choice for many Master Gardeners for its flavor, and also for how prolific and easy it is to grow.

Cherokee Purple tomatoes. Photo: krossbow, CC BY-2.0

Dr. Wyche's Yellow is an heirloom tomato. It is a large, 1 lb. or larger yellow tomato with low acid and great flavor. It has smooth skin and can be a heavy producer. It is great on a burger, BLT or just big flavorful slices. The downside is that it needs a good cage and extra staking to support the large fruit and being an heirloom, it is susceptible to multiple tomato diseases.

Early Girl is a favorite tomato for Melissa King. She says, "I've had great success with Early Girl tomatoes, an indeterminate variety. These medium-sized tomatoes are prolific producers with memorable flavor that lingers on the palate. Excellent for salads and sandwiches."

German Johnson is an heirloom variety that is rosy-red in color, very meaty, and holds up well in our summer heat and humidity. Pat Chadwick shared that she grows this one for sentimental reasons, "My father grew a particularly tasty tomato variety from seeds someone gave to him back in the 50s or 60s. I never knew the name of the variety, but he called it a "German" tomato. German Johnson is the closest I've come to it in taste and appearance. It's not watery like some tomato varieties, so it makes a great slicing tomato. In fact, I had a nice thick slice of one on a burger last night. Heavenly!"

Golden Jubilee is a favorite yellow tomato grown by Cleve and Fern Campbell.

Green Zebra is a unique tomato with tangy green flesh — both colorful and flavorful.

Jetstar is a great all-purpose tomato with good flavor, resistant to many diseases and cracking, a round

shape that is easy to slice, prolific and is indeterminate.

Juliet is a hybrid cherry tomato. The fruits have an unusual oblong shape and are larger than those of other cherry tomato varieties. Juliet is a prolific variety that keeps producing well into fall, long after other varieties are finished for the season. The fruits don't split open in the heat, which is another big plus. Fern Campbell shared, "I love Juliets for dehydrating. I cut them in half and drizzle in olive oil, Italian seasoning/basil and coarse salt and then dehydrate ….then put in freezer baggies, and when I want a snack, appetizer or addition to a sauce….it is very fresh tasting."

Matt's Wild Cherry produces "little flavor bombs," according to Bill Sublette.

Matt's Wild Cherry. Photo: Bill Sublette

Mortgage Lifter is a very large, delicious, classic beefsteak tomato. Chris Stroupe has found it to have pretty good disease resistance…at least so far.

Mr. Stripey is another colorful tomato — it is named for its red and yellow coloration.

Park's Whopper is a large, tasty, meaty tomato with strong disease resistance. According to Melissa King, when you bite into one, there's a robust burst of flavor with lots of juice. These big red beauties are noticeable when growing in a vegetable garden.

Rutgers is an heirloom, red tomato with great flavor and versatility. Ralph Morini tells us, "I became a Rutgers fan this year. After fighting wilts and blights for the past couple of years, I grew Rutgers from seed this year and have had minimal disease issues, with a strong yield. The flavor is good enough that the squirrels prefer them to the hickory nuts that are all over the woods floor. Luckily, ripening them off-vine (inside a paper bag with a bunch of bananas) doesn't compromise their flavor or texture. The indeterminate plants look like they'll keep going until frost."

San Marzanno is a plum tomato and a favorite for tomato sauce.

Sungold cherry tomato. Photo: Cathy Caldwell

Sungold is a hybrid cherry, vigorous and high-yielding, super-sweet.

SunSugar is an early season cherry, and they are so delicious that they rarely make it into the refrigerator.

Sweet 100 is a hybrid cherry tomato with a "pop" of flavor when you bite into one.

With thanks to the following Master Gardeners who contributed to our list of favorite tomatoes: Linda Birch, Gena Breakiron, Alison Brill, Fern Campbell, Cleve Campbell, Pat Chadwick, Charles Greiner, Ralph Hall, Melissa King, Judy Kirby, Ellen Mayoue, Ralph Morini, Bill Sublette, Chris Stroupe, Mary Voorhees, and Nancy Watkins.

Featured Image: Bev Thierwechter

Helianthus – Sunflowers: More than a Big Smiley Face

By Susan Martin | September 2021-Vol.7, No.9

Who doesn't smile when they see a field of sunflowers? Or feel happier when they put a few sunflowers in a vase? Most of us picture the familiar large-headed, folksy giant when we hear the word "sunflower." This article will explore the different types of *Helianthus* sunflowers, including native perennials and annuals, and the many cultivars of the native annual sunflower. The Mexican annual sunflower in the genus *Tithonia* will also be discussed.

HISTORY

The annual sunflower (*Helianthus annuus*) is one of the few crop species that originated in North America. It was probably a "camp follower" of several of the western native American tribes who domesticated the crop as a source of food. Native Americans selected a tall, single-headed variety for domestication before European explorers reached North America in the 16th Century. The first Europeans observed sunflowers cultivated in many places from southern Canada to Mexico.

The sunflower was probably first introduced to Europe through Spain and spread through Europe as an ornamental and medicinal curiosity until it reached Russia where the crop's potential for oil production was established. According to data from 2016, Europe, Russia, and the Ukraine produce almost 70% of the world's sunflowers.

PLANT DESCRIPTION

Native primarily to North and South America, *Helianthus* is a genus comprising **72 species** (14 annual and 39 perennial) **of flowering plants, plus 19 subspecies** in the family Asteraceae.

Wild sunflowers in Boulder Colorado Photo: Susan Martin

The taxonomy gets very complicated; suffice it to say that the *genus Helianthus* is divided into four sections, including an annual section that **includes both the cultivated native sunflower (common sunflower)** and the **wild sunflower (**sometimes referred to as "cultivated wild relatives" or CWRs, an important source of genetic diversity used for breeding in commercial crop production). Most of the popular sunflower cultivars are hybrids of *H. annuus.*

Wild *Helianthus annuus* is a **widely branched, annual plant with many flower heads.** The branching sunflower grows 3-9’ tall, has small flowerheads and small seeds, and produces dozens of blooms over a peak bloom period of 3-4 weeks. The yellow blooms are 2-5” wide with dark centers. They look very much like black-eyed Susan (*Rudbeckia*), only the blooms are larger, and the plants are taller.

The domestic annual sunflower — the one grown for food — possesses only a single large inflorescence (flower head) atop an unbranched stem. **The single-stem domesticated sunflower grows 5-10’; has coarse, hairy, ovate to triangular leaves up to 12” long; and a large seed head with yellow rays and a dark center disc. Flower heads are 3-6” across.**

Both the single-stem and branching-stem native sunflowers are identified in the literature as *Helianthus annuus L.* and are referred to as “common sunflower.” ***H. annuus L.* is known to be an aggressive spreader** and is also considered a weed in many agricultural areas.

Sunflower heads are made up of outer ray flowers and inner disc florets. The large petals around the edge of a sunflower head are individual ray flowers which cannot reproduce on their own and do not develop into seed. **The disc florets have both male and female sex organs and can self-pollinate.** The disc flowers give way to sunflower seeds.

Wild sunflower, branching, Boulder, Colorado Photo: Kevin Terhaar

USES

Sunflower seeds are typically used to make edible oil, bird seed, livestock feed, and food for snacking. Two basic types of sunflowers are typically grown: **oil seed sunflowers** and **confection sunflowers.** Oil seed sunflowers are primarily grown for producing sunflower oil and bird seed. Sunflower oil has been researched as a potential diesel fuel substitute, since sunflower oil has an energy content equivalent to 93 percent of number 2 U.S. diesel fuel.

Confection sunflowers produce large seeds on large heads and have black stripes along the seed coat. This type is primarily grown for human consumption. **Growing sunflowers for decorative purposes,** such as cut flowers in floral arrangements, is a fairly recent trend that has become more popular since the introduction of pollenless sunflowers.

HELIOTROPISM

Sunflowers have motor cells in the flower head, which **move the head so that it faces the sun (Heliotropism).** A sunflower "faces" or follows the sun east to west through the sky and returns at night to face the east, ready for the morning sun. Researchers say the young plant's sun-tracking can be explained by circadian rhythms – the behavioral changes which follow a 24-hour cycle that is tied to an internal clock. The plant's turning is a result of different sides of the stem elongating at different times of day. Studies have shown that **this movement leads to increased vegetative biomass and enhanced pollinator visits.** Heliotropism only occurs during early stages before the flowers form seeds. As the flower buds mature and blossom, the stem stiffens, and the flower becomes fixed facing the eastward direction.

ALLELOPATHY

H. annuus L. 'Mammoth Russian' with Russian sage Photo: Susan Martin

Allelopathy is a biological phenomenon where **one plant inhibits the growth of another through the release of allelochemicals.** This protective system reduces competition from plants nearby. Research that I found is focused on the effect of sunflowers on agricultural crops. Sunflowers give off toxins from their roots, decomposed leaves, and stem leachates. Field studies have shown that the soil around sunflowers are rich in chemicals, with greatest concentrations under the aerial canopy of the plant, and decreasing with distance away from the plant. In the following season, crops in these fields did poorly not because of lack of nutrients, but because of sunflower residues and remaining chemicals. The efficacy of sunflower toxin is such that the **sunflower extracts are being considered as potential organic herbicides.** Potatoes are very sensitive to sunflower toxins, but **not all plants are affected.** Although I found some lists of plants that are considered immune to the toxic effects, I didn't find supporting studies. The photo of *H. Anuus* 'Mammoth Russian' shows that Russian sage (*Salvia yangii*, previously known as *Perovskia atriplicifolia*) is apparently not affected by sunflower toxins. Its height did prevent the sunflowers from getting enough sun in the early growth stage, and so I would not plant sunflowers in this spot next season. I'll be interested to see if the Russian sage, a perennial, shows negative effects next year.

GROWING SUNFLOWERS

Sunflowers are easy to grow, and seeds can be sown directly outdoors into the ground or in containers, once the danger of frost has passed and the soil has warmed to above 50°F. If you've had a problem with squirrels or birds eating the seeds, plants can be started indoors in pots for transplanting outside. When plants emerge, thin every other seed, allowing 12-15" between plants. Rows should have a minimum of 2-3' of space between them. Sunflowers do best when grown in well-draining, slightly acidic soil with a pH from

6.0-6.8 in locations that receive 6-8 hours of direct sunlight. Sunflowers, especially the multi-flowered, branching type or single, large-flowered cultivars, can be heavy soil feeders. Work organic matter into the bed before planting, and then apply a slow-release fertilizer as a side dressing a couple of times during the season. Irrigate soon after the application of fertilizer to allow it to move into the root zone of the plant. Water them regularly 20 days before and after flowering to encourage root growth, which helps anchor taller sunflowers bearing top-heavy blooms. Once established, sunflowers can withstand some drought. Sunflowers generally grow well with 1 inch of water per week, whether from rain or supplemental irrigation. It is important to control weeds to prevent competition with the sunflowers for nutrition and moisture. As they mature, large sunflowers may need support to deal with strong winds or top heaviness from seed production.

EXTEND THE BLOOM

You can have sunflowers blooming all season long through **succession planting.** There are three ways of doing this:

- Plant all at one time multiple varieties that have different days to maturity.
- Plant the same variety at one- to two-week intervals.
- Plant multiple varieties with varying days to maturity at three- to four-week intervals.

Another interesting recommendation comes from Master Gardeners Olson, Liskey, and Habeck at the Oregon State University Extension Service who designed and cared for a sunflower demonstration garden. They planted 18 varieties of sunflowers arranged by height from 15”-12’. They found that the shortest sunflowers bloomed earliest. Based on their demonstration results, they recommend **planting the tall varieties first, mid-sized varieties three to four weeks later, and the short sunflowers about two weeks after that.**

PESTS AND INSECTS

Deer can destroy young, developing plants quickly. If deer have access to your sunflowers, repellents or fencing may be necessary. (See this article, “Deer, Deer, Deer!” from *The Garden Shed*.) Stink bugs, leaf-footed bugs, Japanese beetles, and aphids can be a problem. Be mindful that **sunflowers also attract an enormous number of beneficial insects and pollinators.** Use extreme caution if considering an insecticide. According to the Native Plant Finder by Zip Code, **66 native butterflies and moths use sunflowers as caterpillar hosts.** See the top 15 caterpillars identified at this LINK. Sunflowers may also exhibit occasional fungal infections such as rusts and mildews. Powdery mildew and downy mildew are occasionally found on the leaves of sunflowers, typically affecting the oldest leaves first. If the plants are old enough and have vigor, they can normally grow despite these diseases.

SPECIES Native to the Charlottesville/Albemarle County Area

The Native Plant Finder by Zip Code shows **9 perennial sunflowers native to our area.** See the table below for a summary of requirements by sunlight and soil. A brief description for each of these species is included after the summary table so that you can read more about the sunflowers best suited to your landscape.

- **Ashy sunflower** (*Helianthus mollis*)
- **Giant sunflower** (*Helianthus giganteus*)
- **Maximilian sunflower** (*Helianthus maximiliani*)
- **Paleleaf woodland sunflower** (*Helianthus strumosus*)
- **Purpledisc sunflower** (*Helianthus atrorubens*)
- **Sawtooth sunflower** (*Helianthus grosseserratus*)

- **Smooth sunflower** (*Helianthus laevigatus*)
- **Thinleaf sunflower**, **ten-petaled sunflower** (*Helianthus decapetalus*)
- **Woodland sunflower** (*Helianthus divaricatus*)

FULL SUN	
Ashy sunflower	Well-drained, average, sandy, and poor rocky soil; avoid clay
Giant sunflower	Wet-to-moist sandy soil
Maximilian sunflower	Moist, clay-like soil; wide range of soils
Sawtooth sunflower	Moist, fertile loamy soil, high organic matter
Smooth sunflower	Dry, shale barrens, roadside, powerline corridors
PARTIAL SUN	
Thinleaf or ten-petal sunflower	Moist to mesic conditions, rich loamy soil
Woodland sunflower	Dry to medium, average, well-drained, rocky or sandy soil; wide range of soils
FULL SUN TO SHADE	
Paleleaf sunflower	Dry, well-drained, acidic soil
Purpledisc sunflower	Rocky, clay, or sandy soil

PERENNIAL SPECIES Native to the Charlottesville/Albemarle County Area

H. mollis – **Ashy Sunflower**, Hairy Sunflower, Downy Sunflower

This sunflower typically grows 2-4’ tall. Conspicuously pubescent (covered with short, soft hair), gray-green leaves and stems, project a grayish ash-like color, thus giving rise to the common name of ashy sunflower. Flowers develop singly from the upper stems, with each flower having a 4” diameter. Flowers bloom from July-September. Plant in full sun. Ashy sunflower generally tolerates a wide variety of **well-drained soils, including average, sandy, and poor rocky soils. Avoid clay soils. Plants spread by rhizomes into broad clumps** that are often difficult to properly maintain in a formal border. **It is not described as deer resistant.**

H. mollis, Ashy Sunflower Photo: peganum, Wikimedia Commons (CC BY 2.0)

H. giganteus – **Giant Sunflower**

This wildflower grows 3-9′ tall, with a branched, purplish stem that bears terminal, yellow flowers that bloom July-September. Despite this plant's name, its flower heads are comparatively small, 2-3″ across; the common and species names refer to the plant's overall height. The root system has fleshy fibrous roots and shallow rhizomes. **Small colonies of plants** often develop from the rhizomes. It prefers **full sun, wet-to-moist conditions, and sandy soil**. Because giant sunflower

Helianthus giganteus, Giant sunflower Photo: Homer Edward Price, Wikimedia Commons (CC BY 2.0)

occurs in wetlands, its large stalks are sometimes used by beavers in the construction of their dams and lodges. The stems and leaves can cause skin irritation in humans. **The plant can be fatal to animals if ingested.**

H. Maximilinia – ***Maximilian Sunflower****,* Max Sunflower

This sunflower has several tall, leafy, branched stems that grow to 3-10’ tall. Leaves vary in length from 10” near the bottom of the stem to 2” near the top. Flowers are 5” across with yellow rays and darker yellow-to-brown centers. Bloom time is August-September. Although it **prefers full sun in moist clay-like soil, it can tolerate a wide range of soils.** This sunflower is eaten by many livestock but is reportedly **NOT attractive to deer.** A heavy crop of seeds makes it valuable for wildlife. This is a very big, **vigorous grower that can form large colonies.** It spreads via vegetative sprouting from a thick rhizome, and from seed. It should not be planted in the middle of flower beds as it eventually overtakes its neighbors.

Helianthus maximiliani Photo: Laura Hubers USFWS, Uploaded by Magnus Manske, Wikimedia Commons (CC BY 2.0)

H. strumosus – **Paleleaf Sunflower**, Paleleaf Woodland Sunflower, Woodland Sunflower

The stout, erect, mostly smooth stem of paleleaf woodland sunflower is branched toward the top and grows to 7’ tall. Narrow, oval leaves are up to 8” long and whitish underneath, giving the common name of paleleaf. Flower heads, 2-4” across with yellow rays and a yellow center, grow in loose clusters at branch tips from July-September. The plant grows in full sun to part-shade to shade and likes dry, well-drained acidic soils. It is found in dry, open upland woods and wood edges. It spreads by rhizomes and colonizes quickly. This plant is reportedly **deer and rabbit resistant.**

Helianthus strumosus, Paleleaf sunflower Photo: Homer Edward Price, Wikimedia Commons (CC BY 2.0)

H. atrorubens – **Purpledisc Sunflower**, Appalachian Sunflower

This 3-4’ tall plant is found in **rocky, clay, or sandy soils** of woodlands and along road banks in **full sun to partial shade.** Daisy-like flowers are 2” wide with yellow rays surrounding a dark purple-brown disc. Several flowers bloom on individual 3″ pedicels (stems that attach a single flower to the inflorescence). It excels in open woodland gardens, cottage gardens, and mixed perennial beds. It has shallow rhizomes and is **not described as an aggressive spreader.** It blooms from July until the first frost. This is a larval host plant that supports Silvery Checkerspot butterfly (*Chlosyne nycteis*). It is **deer and drought resistant.**

H. grosserratus – **Sawtooth Sunflower**

Notwithstanding its name, the sawtooth sunflower has leaves that are toothless or only slightly serrated. This plant is 3-12′ tall, with considerable variation in the size of plants across different locations. Plants that grow in dense colonies are only 3-5′ tall, but “lone wolf” plants can achieve considerable height. Sawtooth sunflower has smooth reddish stems, with very little branching, except for some flowering stems that occur along the upper half of the plant. Each flowerhead is 2½-4″ across. The plant thrives in both disturbed and high-quality sites. It prefers **full sun, moist soil, and fertile loamy soil with high organic content.** However, this robust plant will tolerate other kinds of soil. Its roots are fibrous and rhizomatous, sometimes **forming large colonies** that exclude other plants. Sawtooth sunflower is reported to be both **deer and rabbit resistant.**

Helianthus grosserratus, Sawtooth sunflower, Photo: MONGO, Wikimedia Commons, Public Domain

H. Laevigatus – **Smooth Sunflower**

This sunflower grows to 7′ tall and is abundant in Virginia. It produces umbels (short flower stalks which spread from a common point) of brilliant, greenish-yellow stellate (star-shaped) flowers from August-November. Smooth sunflower requires **high light availability.** In Virginia, West Virginia, and Maryland, its habitats include glades **and shale barrens**, woodland borders, dry roadsides, and powerline corridors. It is threatened primarily by fire suppression and by invasion of exotic plant species, such as spotted knapweed and Japanese honeysuckle. Other threats include development, mining for limestone, herbicide use, mowing during the growing and flowering seasons, and road construction**. It spreads by means of underground rhizomes. It is not described as deer resistant.**

H. decapetalus – **Thin-leaf Sunflower, Ten-Petal Sunflower,** Narrow-leaved Sunflower

Helianthus decapetalus, Thin-Leaf sunflower Photo: H. Zell, Wikimedia Commons (CC BY 3.0)

This wildflower is about 3-5′ tall; it is erect and branches occasionally. The leaf blades are up to 7″ long and 3″ across; leaf margins are sharply serrated; and the tips of its leaf blades are unusually long and slender. Each flowerhead is about 2–3½” across, with bright yellow rays and tubular yellow disc florets. The bloom period is July-October. **It prefers partial sun or dappled sunlight, moist to mesic conditions, and a rich loamy soil.** This species **may spread aggressively** in some situations. **It is attractive to deer.** It is a larval host plant to many moths and butterflies, including the silvery checkerspot butterfly (*Chlosyne nycteis*), and painted lady butterfly (*Vanessa cardui*).

H. divaricatus – **Woodland Sunflower,** Rough Sunflower

This plant is easily grown in **average, dry-to-medium, well-drained soil in part shade.** It is found in rocky or sandy woodlands and in dry open sites and is tolerant of a wide range of soil conditions. Flowers are 2″ across with bright yellow rays, and slightly-darker-yellow center discs. The bloom period is July-September. Smooth stems grow 2-6’ tall with short-stalked 6” leaves. This sunflower is well-suited to a native/pollinator garden, naturalized area, or woodland garden, and is a good cut flower. Woodland sunflower is **rhizomatous and forms colonies** over time. Divide every 3-4 years to control spread and maintain vigor. **It is reportedly deer and rabbit resistant.**

Helianthus divaricatus, Woodland sunflower
Photo: Missouri Botanical Garden

PERENNIAL SUNFLOWER CULTIVARS

There are also cultivars of perennial sunflowers. The Chicago Botanic Garden Plant Finder is a good reference for information on both **annual and perennial cultivars. Cultivars of the perennials native to our area include**: *H. maximiliani* ‘Lemon Yellow’, *H. maximiliani* ‘Dakota Sunshine’, and *H. divaricatus* ‘Chartreuse Butterflies’.

ANNUAL SUNFLOWER CULTIVARS

H. annuus L. 'Tiger Eye' Photo: Melissa King

H. annuus L. 'Mammoth Russian', facing east.
Photo: Susan Martin

One of the most recognizable garden flowers is the classic **annual sunflower** *Helianthus annuus.* It has been hybridized into many varieties, including those with red, orange, and bicolored petals, dwarf and mammoth varieties, and those with double flower heads. The University of Minnesota Extension describes **annual cultivars** according to 5 categories: **branching, pollenless, dwarf, semi-dwarf,** and **giant.** It also provides a sample of popular cultivars for each. The following chart provides a summary. 'Kong' and 'Tiger Eye' were added as examples.

Branching	**Pollenless**	**Dwarf**	**Semi-dwarf**	**Giant**
Sonja	ProCut Series	Teddy Bear*	Cappuccino	Cyclops
The Joker	Double Quick	Sunspot*	Chianti	Mammoth Russian
Shock O Lat	Sunrich	Ms. Mars	Italian White	American Giant
Teddy Bear			Moulin Rouge	
				Kong
				Tiger Eye

ANNUAL CULTIVAR CATEGORY SUMMARIES

Branching cultivars get quite large and produce an abundance of blooms over a long period. They require a good deal of room, so space them 18-24" apart.

Pollenless cultivars are used primarily as cut flowers or garden plants. Pollen-free types do not contain any of the bright yellow pollen that can stain clothing or tablecloths. Heights range from 2-8' with a variety of flower colors and forms.

Dwarf cultivars are 3' tall or less. They generally work well in front of beds or borders, in limited spaces or in containers. ***I planted both 'Teddy Bear' and 'Sunspot' cultivars this spring from seed.** The first problem was that birds ate the planted seed. The second problem was that deer devoured the plants both before bloom and after bloom. See phot

Semi-dwarf cultivars are 3-8' tall and usually do not require staking. These cultivars generally work well in the beds or borders of most home landscapes.

Giant cultivars grow to a height of 8' or more. These cultivars sometimes require staking due to the size of the plants, flowers, and seed heads. Space plants about 2' apart for good air-circulation.

Helianthus annuus 'Sunspot'
Dwarf sunflowers with zinnia. Sunflowers eaten by deer two days after this photo. Photo: Susan Martin

TIPS FOR HARVESTING SUNFLOWER SEEDS

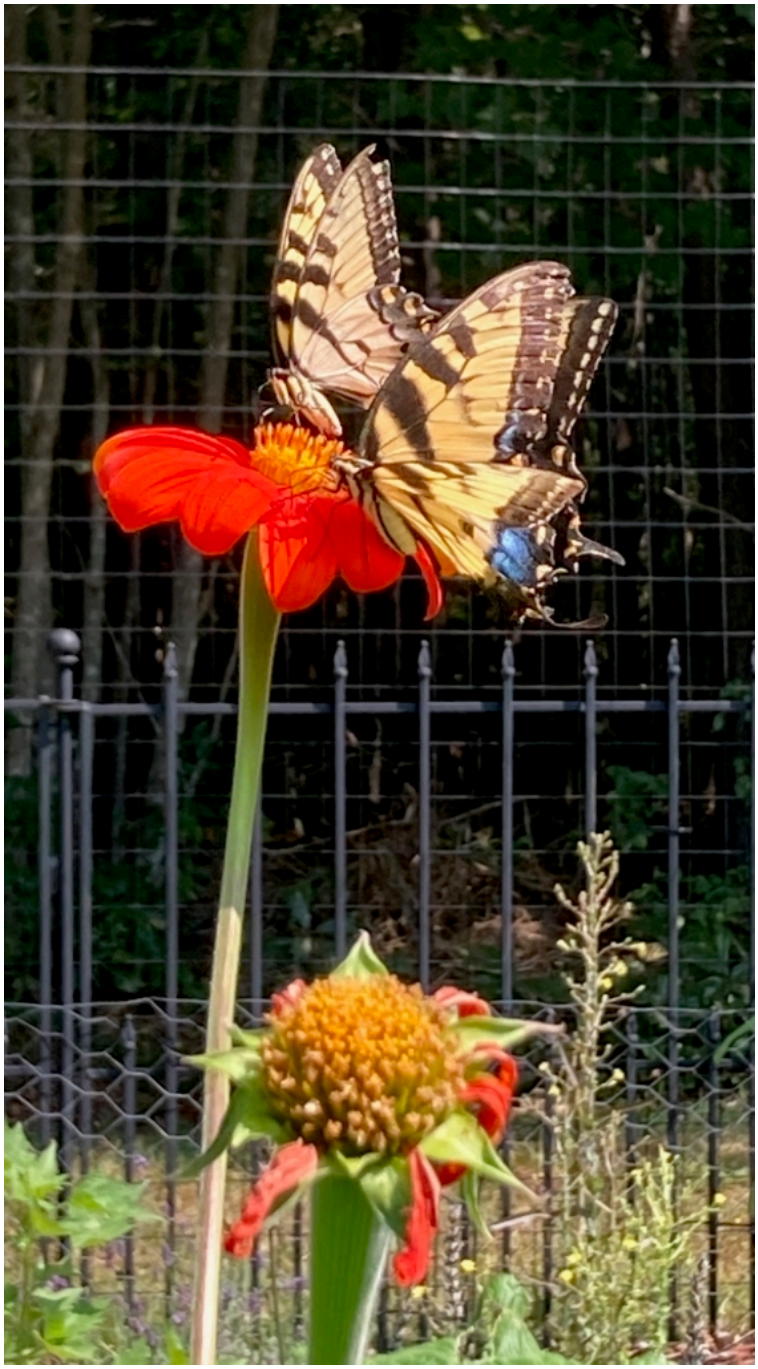
Sunflowers are mature when the back of the heads turn yellow and eventually brown and dry. Most of the yellow petals will have dried and fallen, with the seeds still plump. Seed heads can ripen on the plant, but they will need protection from birds. Try covering the heads with a paper sack or cheesecloth once the petals start turning brown if you want to protect the seeds. See this article for information on how to prepare seeds for consumption by both birds and people.

POLLENLESS SUNFLOWERS

Pollenless sunflowers originated as a mutation, a genetic error. They are male-sterile: the hundreds of individual florets that compose the inflorescence of pollenless sunflowers produce no pollen. Although the **flowers have nectar, bees would still need to collect pollen from another source.** Pollen is a source of amino acids for bees and is used to feed young larvae. Making additional trips to get pollen and nectar from different flowers is less efficient. Other pollinating insects may or may not frequent pollenless sunflowers. Most pollinating beetles, for example, are pollen eaters and will avoid pollenless sunflowers. Butterflies and hoverflies, however, feed mostly on nectar and are unfazed by the lack of pollen. If there are bisexual sunflowers within pollinating distance of pollenless sunflowers, the pollenless flowers can be pollinated to some extent and produce seeds. But otherwise, no food for the birds! **Pollenless sunflowers make good cut flowers but are not very beneficial to wildlife.**

TITHONIA ROTUNDIFOIA – MEXICAN SUNFLOWER

Tithonia rotundifolia, Mexican sunflower Photo: Melissa King



Tithonia rotundifolia, Mexican sunflower with with Eastern Swallowtail butterflies Photo: Melissa King

Mexican sunflower is an annual in the family Asteraceae, but it is in the genus *Tithonia*, rather than *Helianthus*. It is native to Mexico and Central America. The species ***Tithonia diversifolia*** is listed by the University of Florida as being **very invasive**. It spreads by self-seeding and by stolons. The species ***T. rotundifolia* is not invasive.** This species will be discussed in this article.

T. rotundifolia grows **4-6' tall (sometimes up to 10!)**, with a large central stalk. T**he solitary 3" flowers have orange to orange-red rays and orange-yellow disks.** The flowers, which make nice cut flowers, are **attractive to a wide variety of bees, butterflies, and hummingbirds.** Flowers are produced from mid-summer until frost. The foliage and stems are covered with a soft downy fuzz, and the underside of the leaves are hairy. *T. rotundifolia* grows best in **full sun in poor to average, well-drained soil.** Avoid planting in rich soil and avoid heavy fertilizing; these practices will promote excess foliage and weak stems. Cut off the spent flowers to promote more blooming. Shelter from strong winds if possible; staking is also very helpful. The flowers are followed by grey-to-black flattened triangular seeds that are easy to collect for future planting. *Tithonia* can be grown from seed, either planted directly in the garden after the last frost date or, for earlier blooms, started indoors 6-8 weeks before the average last date of frost. Sow shallowly as light is required for germination. Although an annual, this plant will generously self-seed. Because of its tall stature and coarse texture, this sunflower is best used at the back of borders and beds to form a backdrop for shorter plants. It has few pests or disease problems and is **not favored by deer.** Watch for slugs and snails. *Tithonia* needs warm sunny weather to grow well so it may not do much early in the season. Be patient and you will be rewarded with blooms and pollinators!

SUMMARY

Although most people are familiar with the tall, large-headed annual sunflower, *Helianthus annuus*, there are many more sunflower varieties available. There are both **native perennial species and numerous**

cultivars of *H. annuus*. They come in different sizes, forms, and colors to enliven the late-season garden, although some perennials start blooming as early as July and continue flowering until late fall! Cultivars range from a dwarf at 15" for the front of the garden, to mammoth varieties that tower in the back. You should be able to identify different native perennial species that match your landscape conditions. Both annuals and perennials can easily be grown from seed, although seeds for the less familiar perennial varieties may be more difficult to find. For the annual hybrids, remember that **seeds of hybrids will not produce plants that are "true to seed" the next season.** If you want consistency in plants from year to year, it is best to start with new seed. Perennial varieties can also be propagated by division. **The annual varieties are very susceptible to deer damage, but some perennial varieties are described as deer resistant. Check for deer resistance by species. Perennial sunflowers are rhizomatous and most need room to spread.** Some species are described as good additions to perennial borders; others are described as aggressive colonizers and are recommended for natural areas. The Mexican sunflower, ***Tithonia rotundifolia*,** is an **annual sunflower that attracts many pollinators** and offers a **bright splash of orange-red in the summer-fall garden.**

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FEATURE PHOTO: *H. annuus* 'Kong' with bee. Photo: Melissa King

Upcoming Events – September 2021

By Sara Albrecht | September 2021-Vol.7, No.9

MOUNTAIN TOP ARBORETUM PRESENTS: A Talk by Darrel Morrison
FREE ZOOM WEBINAR
Sunday, September 5
5:00 PM – 6:30 PM

Darrel Morrison is a renowned landscape architect and educator whose ecology-based approach to design has influenced generations of practitioners. In *Beauty of the Wild*, he tells stories of people and places that have nourished his career as a teacher and a designer of nature-inspired landscapes.

See this LINK for more information and to register.

CHARLOTTESVILLE AREA TREE STEWARDS
FREE WALKS AND TALKS IN SEPTEMBER
REGISTRATION IS REQUIRED

See this LINK for more information and directions for each of these Tree Stewards events. October events are also listed.

Pen Park Tree Identification Walk (currently full)
Sunday, September 5, 11:00 a.m. to 12:00 p.m.
Pen Park Road, Charlottesville

Although this event is currently fully subscribed, you may wish to check the following registration link at a later time: https://forms.gle/jpYgNy5oW6eLyPBfA

Tree Basics Class: Trees and Wildlife (ZOOM)
Thursday, September 9, 7:00-8:30 p.m.

Please use the following link to register: https://forms.gle/9Hqra61aFTjcXYLa8

Botanical Garden of the Piedmont Tree Identification Walk
Saturday, September 11, 10:30 a.m. to 12:00 p.m.
950 Melbourne Road, Charlottesville

Please use the following link to register: https://forms.gle/C1EFBpowEM2HkpDc9

Directions: The Botanical Garden of the Piedmont is located at 950 Melbourne Road (Corner of Melbourne Rd and the John Warner Parkway). Parking is available within the Garden when the Gate on Melbourne Road is open. Parking is also available along either side of Melbourne Road. The walk will be approximately 90 minutes and cover 1.4 miles. If there has been any rain, the site tends to be wet so sturdy, waterproof shoes are recommended.

University of Virginia Campus Tree Identification Walk
Friday, September 24, 11:00 a.m. to about 12:30 p.m.
University Chapel, 145 McCormick Road, UVA, Charlottesville

Please use the following link to register: https://forms.gle/zNaURLf5v9ciBJfg9

Directions: Parking is available in the 14th Street Garage, Central Grounds Garage at 400 Emmet Street (the Bookstore Garage) and on the Street. Please meet at 10:55 am in front of the Chapel, which is on the west side of the Rotunda. The walk will be limited to 16 people.

ECOLOGICAL LANDSCAPE ALLIANCE (ELA) WEBINAR
"Designing for Dry Stone Walling in the Landscape"
Wednesday, September 8
3:00 – 4:00 PM

Traditional dry stone construction methods offer several advantages when used in sustainable landscape construction. This session will touch on the history, as well as some of the methods involved in dry stone construction. Learn the basic parameters for determining carbon footprint and other environmental implications when designing for dry stone walls.

For more information and to register, see this LINK.

Mt. CUBA CENTER VIRTUAL CLASSES for SEPTEMBER

"From Wolf Spiders to Orb Weavers: An Overview of Mid-Atlantic Spiders"
Tuesday, September 14, 6:00 – 7:30 PM

Spiders are ubiquitous creatures in our basements, meadows, and woodlots. While they inspire feelings of fear among many, they are a source of wonderment and mystery to the nature enthusiast. Join entomologist Cathy Stragar for this interactive discussion on the natural history, identification, feeding strategies, and adaptations of the common spiders in the mid-Atlantic region.

For more information and to register, see this LINK.

"Seeds: Wild versus Commercial"
Thursday, September 16, 6:00 – 7:30 PM

For more information and to register, see this LINK.

We all know the importance of planting and promoting native plants, but what are the differences between wild seeds and those you can purchase from a commercial vendor? While seed farming is needed to meet the demand from restoration practitioners and homeowners, the end product can differ considerably from local, wild material. Join Native Plant Trust's Research Botanist, Jessa Finch, for this interactive online session to explore the impact of seed sourcing on commercially sold seed and to equip yourself with the information you need to be an informed purchaser of native plant seeds.

Mt. Cuba Center is a non-profit botanical garden located in Hockessin, Delaware near Wilmington. Its woodland gardens produce some of the most spectacular displays of wildflowers in the mid-Atlantic region. The botanical garden is now open to the public, see this **LINK** for info. **See this LINK for information on Mt. Cuba's world-famous trial garden and study results.**

PIEDMONT MASTER GARDENERS
GARDEN BASICS CLASS via ZOOM
"Lawns and Lawn Alternatives"
Saturday, September 18
2:00 – 3:30 PM

Please check this LINK for more information, and to register. **Register by September 13.**

BOTANICAL GARDEN OF THE PIEDMONT

The Fourth Annual Ian Robertson Legacy: Lectureship
Thursday evenings at 7:00PM in September

The theme of the lecture series this year is The Healing Properties of Nature. There are four talks in the month of September on consecutive Thursday evenings. The topics are as follows:

- September 9th – Nature: Healing the Individual – Carolyn Schuyler
- September 16th – Nature: Healing Communities – Donald A. Rakow
- September 23rd – Healing Nature – Lee Schulmeisters
- September 30th – Panel discussion and Q&A

Tickets are on sale now!
Individual evenings: $15
Package of 4 evenings: $55
Follow this link for more information and to purchase tickets.

VIRGINIA NATIVE PLANT SOCIETY
STATE AND CHAPTER EVENTS

See this LINK for a listing of both virtual and in-person September/October events hosted by different state and chapters of the VNPS.

THE NATURE FOUNDATION AT WINTERGREEN
3421 Wintergreen Drive, Roseland, VA 22967

Special Plant Sale
Saturday, September 4
9:00 AM – 12:00 PM

The Greenhouse is closed Sunday and Monday; hours vary from Tuesday-Saturday. See this LINK for more

information and to see a **listing of native plants available for purchase.** Plants can also be ordered online and picked up at an arranged time by emailing info@twnf.org

September Guided Hikes

For information on guided hikes, difficulty ratings, and to register, please see this LINK to the September calendar.

LEWIS GINTER BOTANICAL GARDEN

Fall PlantFest
1800 Lakeside Avenue
Richmond, Virginia 23228
Friday, September 17, 9:00 AM – 5:00 PM
Saturday, September 18, 9:00 AM – 3:00 PM

Fall PlantFest is held outside in Parking Lot C at the Garden (no admission fee or ticket necessary.) The Fall PlantFest features vendors selling plants ranging from well-known favorites to rare exotics. Knowledgeable garden volunteers help you choose your best plants! See this LINK for more information.

Grow Native: Landscaping with Virginia Natives
Zoom Webinar Series
Evenings in September, October, and November
6:30 – 8:00 PM

If you've heard that using native plants in your yard helps improve the environment for everyone, but are not sure why or how to do that, this series of webinars brings you up to speed on ways to turn your home and garden into a native-friendly, sustainable, and resilient habitat for birds and other wildlife.

$10 covers the entire series. Attend each program or pick and choose your topics.
For dates, topics, and to register, see this LINK.

MONTICELLO'S TUFTON FARM

2021 Fall Plant Sale at the Thomas Jefferson Center for Historic Plants
1354 Tufton Farm
Charlottesville, VA 22902
Saturday, October 9
9:00 AM – 3:00 PM

Preregistration will be required; check back for more information in late summer by visiting this LINK.
General information for Monticello is (434) 984-9800.

Heritage Harvest Festival Tasting Event
Saturday, October 23
10:00 AM – 12:00 PM

This popular annual event is a unique opportunity to taste and compare heirloom and conventional apples, sample cheese pairings and hard ciders, see Monticello's Tufton Farm, and learn about the history of apples from featured guest speaker Charlotte Shelton of Albemarle CiderWorks.

Tickets are $35 each and space is limited to 75 participants. Children 11 and under attend free. See

this LINK for registration information.

BLUE RIDGE PRISM (PARTNERSHIP FOR INVASIVE REGIONAL SPECIES MANAGEMENT)
INVASIVE PLANT WORKSHOPS: IDENTIFICATION AND CONTROL
WORKSHOPS VIA ZOOM. For more about upcoming workshops, see this LINK.

See this LINK for general information on PRISM, research updates, invasive plant factsheets, and more.

MONARCH JOINT VENTURE
THE 2021 Monarch Conservation Webinar Series
4th Tuesday of the Month *
2:00 PM EST

The Monarch Joint Venture is partnering with the U.S. Fish and Wildlife Service National Conservation Training Center to put on another year full of informative and inspiring webinars on all things monarch. Webinars will be held live on the 4th Tuesday of the month at 2 PM EST. Each webinar will be recorded for later viewing as well. Check on the session title to register.

Future Webinar Titles:

- **September 28th** – Protecting and Restoring California's Overwintering Groves
- **October 26th** – Recovery of the Monarch Butterfly: Federal and State Legislation that can Provide Hope for this Iconic Animal
- **November 16th** – The Monarch Butterfly Fund – Supporting Monarch Conservation in Mexico
- **December 21st** – Eco-literacy and Conservation: The Convergence of Research, Policy and Education

* The November and December dates have been moved to avoid conflicting with major holidays. Please note this list is subject to change. Their EVENTS PAGE will have the most up-to-date information on the webinar series, as well as a calendar of additional monarch-related events, and information on recordings of past webinars.

SIERRA CLUB VIRGINIA CHAPTER FREE VIRTUAL EVENT
"Proposals to Reintroduce Red Wolves to Virginia"
Tuesday, Sept 14
7:00 – 8:00 PM

Richmond-based journalist Stephen Nash has been looking into proposals to reintroduce red wolves, *Canis lupus rufus*, to Virginia. In the 1970s, the U.S. Fish and Wildlife Service caught the last 17 known representatives of this critically endangered species, whose range once extended from Florida to New York and the Atlantic states to Texas. The agency has worked to enlarge the captive population and reintroduce these animals to the wild, with varying success and gale-force political headwinds. Today, only a handful of red wolves remain in the wild in coastal North Carolina, and two hundred or so are in captive breeding facilities, nine of which are at Roanoke's Mill Mountain Zoo.

Register at this LINK for this free virtual event.

DOLLY MADISON GARDEN CLUB
Lecture and Brunch
Marianne Willburn, "Big Dreams, Small Garden"
THE BARN at THE INN at WILLOW GROVE, ORANGE, VA

Wednesday, November 10
10:00 AM – 12:00 PM

See this **LINK** for more information and to register. Space is limited.

VIRGINIA COOPERATIVE EXTENSION (VCE) VIDEO LIBRARY

VCE offers a variety of **YouTube videos** on topics geared to both beginner and more advanced gardeners. Examples of topics include:

Planning Your Fall Garden
Rose Rosette Disease, Parts 1 and 2
Plant Disease Clinic: IDs and Diagnoses
Weed Identification: IDs and Diagnoses
Soil Testing Lab: IDs and Diagnoses

For these and many more videos that address specific topics or those of more general interest, see this **LINK**.

The Ornamental Garden in September

By Susan Martin | September 2021-Vol.7, No.9

QUESTION: Who doesn't like to be told, "Do less, and things will be better."

ANSWER: A lot of gardeners

Gardeners, on average, are an energetic lot. I also consider myself somewhat of a neatnik, and this characteristic is probably typical of many gardeners, at least in their outdoor space. In my old-style, nonnative garden, I looked forward to the autumn ritual of "putting the garden to bed." I had learned to amend the soil with mulched leaves, but I also enjoyed cutting down the perennials and disposing of the spent foliage and brown flower heads. It gave me such pleasure to see the garden tidied up and tucked "safely" away as it waited for spring. I didn't visualize all the activity that should have been going on.

Although we'll address the details of preparing for the cold weather in our October/November issues, this is an early reminder of thinking about the **ongoing relationship our gardens have with living things in every season.** This often means "staying the hand" that wants to get a jump on things!

"Messy is definitely good to provide food and shelter for birds during the cold winter months," says

Tod Winston, Audubon's Plants for Birds program manager. Birds are not the only wildlife who benefit. Cavity-nesting bees overwinter in waterproof cocoons inside spongy stems of plants such as elderberry and Joe Pye weed. Queen bumblebees often overwinter in small spots obscured by leaf litter. Butterflies need shelter and overwintering areas. Removing dead flower heads and dead plant foliage may accidentally remove eggs or pupating butterflies. **As the September days and nights get cooler, don't be too eager to "tidy up" the beds.**

WHAT TASKS SHOULD WE DO?

- **Keep watering shrubs, trees, and perennial plants that need regular moisture.**
- Heading into the winter with dry roots can mean major trouble for trees in the spring. If we don't receive adequate rain, **keep watering trees on a regular schedule through the fall and until the ground begins to freeze (usually late October or November).** When there is little to no snow cover and little precipitation, plan on watering your trees 1-2 times per month until they begin leafing out in the spring. **Water early in the day when the temperature is above 40°F** and there is no snow or ice on the ground near your trees. See this article on when and how to water trees from fall through winter.
- **Keep weeding!** See this list of weeds with photos from the University of Maryland Extension for help with weed identification.
- **Remove anything that looks diseased and do NOT compost.** As an example, I've already cleaned out the lower, diseased-looking foliage of some purple coneflower (*Echinacea*), along with some seed heads that showed a fungus. I left the healthy-looking seed heads for the birds. Goldfinches seem to especially love purple coneflower seeds.
- **Leaving the seed heads will also allow self-seeding**. If your garden has space, this is a big bonus. If not, be on the lookout for seedlings next spring. Transplant to other areas or pot up for sharing.
- **Remove the foliage of plants that have been infected by powdery mildew.** This mildew often appears later in the growing season. Many fungal diseases can overwinter in plant debris and cause infections the following year when growing conditions promote disease. For example, powdery mildew is often prevalent when conditions are cool and wet. Powdery mildew thrives in 60-70°F, especially when humidity levels rise above 50%.

Echinacea, purple coneflower, example of basal crown Photo: Susan Martin

- **Leave healthy foliage to help protect the crowns** of some plants from cold temperatures. The energy from healthy foliage will remain in the plant to feed the roots. What types of perennials should retain foliage? **Do not remove fern fronds** because they protect the crown. Do not remove the evergreen foliage of hellebores. Perennials with basal crowns (a rosette of leaves that connects the stem to the roots) often die back to the crown. **If a perennial is growing new basal leaves at the crown,** cut off the spent stalks but **don't disturb the new leaves at the base.** Examples of these perennials are coral bells (*Heuchera sanguinea*), Siberian bugloss (*Brunnera macrophylla*), *Salvia x sylvestris*, lungwort (*Pulmonaria*), black-eyed Susan (*Rudbeckia*), purple coneflower (*Echinacea)*, rose campion (*Lychnis coronaria*) and wild blue indigo (*Baptisia*).
- **Cut back grasses and sedges in early spring rather than in fall;** this helps protect the crown during the winter, and provides habitat for insects, birds, and small mammals. The beautiful colors and textures of grasses and sedges also add winter interest to the landscape.
- **Do not prune shrubs and trees in autumn** unless you are removing damaged, dead, or diseased limbs. **Pruning now may trigger new growth that cannot harden off before winter**. Most woody plants should be pruned in winter when plants are dormant. According to the Shrub Pruning Calendar published by Virginia Cooperative Extension, only sumac is recommended for pruning in September, but this shrub can be pruned in any month with the exclusion of April-July. This pruning calendar is a very handy reference.
- **Remove annuals that are spent,** diseased, or if you know they'll turn "slimy" with the first frost. Impatiens are a good example of annuals turning black with the first frost.
- **Rejuvenate your planters** by adding autumn flowers to your healthiest summer annuals. Although I enjoy getting a "second life" out of annuals, this year my containers are looking very ragged. I'll need to start anew with fall flowers.
- **Bring houseplants indoors** before nighttime temperatures drop into the 50s. Inspect the plants carefully for insects such as scale, white fly, mealy bugs, spider mites, or fungus gnats. Wipe down the containers and the saucers, including the bottoms of each, to remove cobwebs, dirt, and debris. Pay particular attention to the undersides of leaves where pests are most often found. See this article from the Clemson Cooperative Extension for more information on identifying and treating houseplant pests.
- **Fall is the time to rejuvenate the lawn.** Get a soil test every three years; only fertilize according to test results. Fall is the time to add lime if you need to raise the pH. Aeration is also done in the fall. See "Responsible Lawn Management in the Era of Climate Change," for more information.
- The cooler temperatures make this an **ideal time to plant trees and shrubs.** Newly installed woody plants do best when soil temperatures range from 55-75° F. Root development typically stops once soil temperatures drop below 40° F. **Water newly planted trees and shrubs** until the roots become established. Typically, this is a 2-year period.
- Consult the Native Plant List by Zip Code for a list of shrubs that you would like to try. Check the recommendations against the Audubon Native Plant list by Zip Code for trees and shrubs that attract certain birds.

DIVIDE PERENNIALS

September is an excellent time to **divide perennials**. Most recommendations cite 4-6 weeks before the first freeze date so that plants can set roots. The first freeze in our area (Zone 7a) typically occurs between October 15 — October 25. This means that **perennials should be divided starting in September and finishing by about mid-October (this is a low-risk recommendation, i.e., a low probability of**

getting caught by an early freeze.) This timing recommendation can also differ by hardiness of plants. More tender plants need a longer adjustment period. For a chart showing the likelihood of a freeze (and how hard a freeze it might be) on particular dates in October, see the 10/20 issue of *The Garden Shed*.

Although many perennials may be divided in either spring or fall, a general guideline is to divide spring-blooming perennials in the fall and divide summer-to-fall blooming perennials in the spring. For detailed information on dividing perennials, see this article from *The Garden Shed*, "Guidelines for Dividing Perennials." This article also refers to a listing from the Minnesota Cooperative Extension on determining spring or fall division for **specific** perennials.

Fall is also a good time to plant perennials that you might find on sale at the end of season. Just be aware of the same first-frost date and 6-week guideline as described above.

PLANT BULBS

Plant spring-flowering bulbs when average nighttime temperatures are in the 40-50°F range, or when the soil temperature has dropped to 60°F (usually after the first heavy frost). **For USDA hardiness zones 5 to 7 in Virginia, try to plant bulbs in October and in November. For good bulb selection, shop early and store the bulbs** in a cool, dry dark place at a temperature of 60-65°F. If you are filling in spots among your established bulbs, hopefully you took a picture or left a marker last spring to show where additional bulbs are needed. If not, make a note for next spring!

FORCING HARDY BULBS

Making a plant flower at a predetermined time or under artificially imposed conditions is called forcing. Hardy bulbs are planted in pots in the fall for spring bloom and include crocuses (*Crocus* species), daffodils (*Narcissus* species), hyacinths (*Hyacinthus* species), and tulips (*Tulipa* species). **Bulbs should be potted anytime from mid-September to December, depending on the desired date of flowering** and the length of storage. If you cannot plant your bulbs immediately, store them in a cool place (35-55 °F). Bare bulbs can be stored for several weeks in the refrigerator prior to potting. Store them in a mesh bag or a paper bag with holes to permit ventilation. **In general, plant in mid-September for flowering in late December,** around mid-October for flowering in February, and in mid-November for March and April flowering. Refer to Forcing Bulbs Indoors, Clemson Cooperative Extension, for detailed instructions on planting and forcing bloom. This source also discusses how to **force paperwhite narcissus** (*Narcissus tazetta*; synonym *N. papyraceuss*) **and amaryllis** (*Hippeastrum* cultivars) without cooling.

A NEW GARDEN BED WITHOUT DIGGING!

Try sheet composting, also called "lasagna gardening," to add new perennial beds and avoid the work of removing sod. This process requires about 6 months for the organic materials to break down, so fall is the perfect time to prepare the bed. Decide on the bed shape, mow the grass short, outline the bed with an edge. Cover the desired area with over-lapping cardboard (or newspaper), water, cover with a 2-3" nitrogen layer (compost, well-rotted manure, grass clippings), add a 2-3" carbon layer (wood chips, dry leaves, sawdust). Repeat with alternating nitrogen and carbon layers until you have reached a height of 18″-36″. Add another layer of cardboard and mulch. **Decomposition will occur over the winter and the new garden bed will be ready for planting the following spring!** See this article from *The Garden Shed* and an article from PennState Extension which includes a video.

FEED THE MANY

Before choosing which trees and shrubs to plant this fall, spend some time thinking about the overall needs

of your landscape design. What kinds of birds, pollinators, or other wildlife do you hope to attract? Providing food and cover year round requires a variety of trees, shrubs, and other plants. Have you planted native bushes, such as viburnums, that provide berries? (See this article on viburnums from *The Garden Shed*.) Did you check to see how many of your shrubs act as larval hosts for certain butterfly or moth species? You can check this out through referring to the Native Plant Finder by Zip Code. **One goal for fall could be to provide more food for birds through plantings, and reduce the reliance upon bird feeders.** Feeders can fill a need when food is less plentiful between November-March.

INVASIVE WATCH FOR SEPTEMBER

We usually focus on one or two invasive plants based on seasonal alerts from Blue Ridge PRISM (Partnership for Regional Invasive Species Management). **Many invasive plants described by PRISM are easily identifiable in fall** because of either brightly colored berries, fall foliage, or both. **In addition, the proposed eradication methods for these invasives are effective at this time of year**. To see PRISM Fact Sheets on each plant and photos for identification, click on the link highlighted in the plant's name. For control methods, see Blue Ridge PRISM/Fact Sheets/Control Methods. It is easy to feel discouraged at the length of this invasives list. You may consider devoting some of your fall energy to eradicating one or two invasive plants from your property. That would be a great start!

AUTUMN OLIVE (*Elaeagnus umbellata*)

Identify in fall when its silvery olive-green foliage stands out against the fall color or leafless branches of other vegetation. Autumn olive is difficult to control, but it can be done with the cut-stump method. Cut or saw all stems to several inches from the ground and immediately spray cuts with a ready-to-use stump killer or a concentrated herbicide. For types and amounts of the herbicide recommended for autumn olive or any other invasive, Blue Ridge PRISM refers to Va. Dept. Forestry/Non-Native Invasive Plant Species Control Treatments.

BRADFORD PEAR (P*yrus calleryana* 'BRADFORD') AND OTHER ORNAMENTAL PEARS

The fall fruits are round and vary from pea- to cherry-sized and ripen from green to brown with russet dots. Their leaves remain green later than most plants, turning bright colors very late in autumn. Best timing for all three methods of eradication described by Blue Ridge PRISM is fall through early winter.

JAPANESE HONEYSUCKLE (*Lonicera japonica*)

This vine retains its leaves well into winter (year round in mild climates). The tubular flowers are sweetly fragrant and bloom in pairs on opposite sides of the stems from early summer into fall. They open white or pinkish and mature to yellow. Small green berries, which ripen to black, may form after the flowers fade. The best time to spray is autumn and early winter after most native plants have lost their leaves or are dormant, but before a hard freeze (24°F).

JAPANESE STILTGRASS (*Microstegium vimenium*)

Mowing is best done just before flowering in August and September and need be done only once if you wait until then. Cut stiltgrass as low as possible, scalping the ground, to remove all flowers.

KUDZU (*Pueria montana* var. *lobata*)

It is easiest to spot Kudzu when its reddish-purple flowers appear in late summer to early fall. Treatment with cut stumping is best done in late summer or early fall. Foliar herbicide sprays must be applied twice a year. The first spray is applied in late spring or early summer after leaves mature. The second treatment is

applied in late summer or early fall.

MULTIFLORA ROSE (*Rosa multiflora*)

In addition to its long, thorny canes, this invasive is easy to spot in fall when the rosehips ripen to red. Cut stems about a foot from the ground and paint or spray a recommended concentrated herbicide immediately on the cut stump.

ORIENTAL BITTERSWEET (*Celastrus orbiculatus*)

Gold-colored foliage and brightly colored berries make this invasive easy to spot from fall into winter. Hand-pulling, cut stump, and foliar sprays are all possible treatments.

PORCELAIN-BERRY (*Ampelopsis brevipedunculata*)

This invasive is easy to spot in fall when colorful clusters of different colored berries (creamy-white, green, yellow, and lilac) ripen to bright turquoise blue in September and October. Herbicidal foliar treatment is most effective when applied between midsummer and early fall. The cut stump method is successful any time the temperature is above 40°F and is expected to remain at least that warm for 24 hours.

TREE OF HEAVEN, PARADISE TREE, AILANTHUS (*Ailanthus altissima*)

Male and female flowers occur on separate trees and form large, showy, yellowish-green clusters at the branch tips. Seed clusters on female trees begin creamy-yellow and ripen to yellow-green or red brown, retaining color until winter. Larger trees are best treated from early summer to early winter using either the hack & squirt or cut stump methods.

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Feature Photo: Fall Garden, Susan Martin

Salsa—Part One, Part Two

By Erin Hall | September 2021-Vol.7, No.9

In early September, tomatoes and peppers are likely abundant in your garden. For our monthly recipe, we offer a way of making salsa to can —and an uncommon way to use your salsa when the weather inevitably turns cooler. Master Gardeners Fern and Cleve Campbell have a large, productive garden in Crozet. When they have abundant vegetables, they like to make a large batch of this salsa recipe, which they learned from Fern's older sister. Quadrupling it gives them 40 pints of the popular condiment to share. The one challenge, Fern says, is to have cilantro, which tends to bolt in the summer heat, ready at the same time as everything else.

Our second recipe is more an idea than a recipe. The secret to this healthy, tasty and quick soup is prepared salsa. It came from my sister-in-law and has been a cool-weather standard at our house for thirty years.

Salsa for Canning

makes 10 pints

14 cups cubed tomatoes (prefer paste type as less watery)

2 cups chopped green bell peppers

3 cups chopped onions

6-7 chili peppers or 2-3 jalapenos—add to taste

¼ cup sugar

3 Tbsp coarse or canning salt

1 Tbsp chili powder

1 ½ tsp cumin

1 ¼ tsp garlic powder or a handful of real minced garlic

1 cup vinegar (5%)

1 bunch cilantro – chopped

1 cup Clear Jel® (optional)*

1. Dip tomatoes in boiling water for 30-60 seconds to remove peel then chop.
2. Place your chopped tomatoes in a strainer over a bowl where you collect the juice.
3. Combine your chopped tomatoes, onions, peppers, and remaining ingredients (except the Clear-Jel®) in a saucepan and bring to a simmering boil for 5-10 minutes.
4. Mix half the Clear Jel® with approximately 1 cup of the drained tomato juice and stir to dissolve then add the mixture into the simmering pot. Continue to add Clear Jel ® in this manner to achieve consistency you want.
5. Adjust heat to bring to simmering boil again and maintain simmer for 10 minutes. Fill hot salsa into hot pint jars, leaving ½ inch headspace. Wipe rims of jars clean and place lids. Process in a boiling water bath for 15 minutes. Follow *USDA Complete Guide to Home Canning, 2015*

*Clear Jel® is a modified food starch that produces the correct thickening, even after the fillings are canned. Other starches such as corn starch, break down and result in a runny filling. Do not substitute and do not use Instant Clear Jel®

Beans and Greens Soup

4-6 servings

1 bunch kale greens, leaves stripped from stems, rolled, and cut crosswise into ½” strips

2 cooked mild Italian sausages, cut into bite-sized chunks

1 cup salsa

4 cups unsalted chicken broth (homemade or 2 small cans)

1 can pinto beans, drained and rinsed

1. Brown the meat in a little olive oil in a large saucepan.
2. Add all other ingredients except the beans and cook over medium heat until greens are tender.
3. Add the beans and heat through.
4. Serve with a sprinkle of shredded Mexican-style cheese on top and tortilla chips on the side.

This recipe is endlessly adaptable for what you might have on hand. Options include:

For kale—Fresh collards, or frozen chopped collards or kale

For sausages—Chorizo, chopped ham, or browned crumbled sausage of any kind

For salsa—any kind, fresh or canned, mild or hot

For chicken broth—vegetable broth or water

For pinto beans—canned navy beans, cannellini, or kidney beans