July 2018 - Vol.4 No.7

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Got dry shade? We've got solutions.

By Cathy Caldwell | July 2018 - Vol.4 No.7

Are you looking for a plant that can thrive in dry shade? Yes, there is such a thing. In fact, there is more than one, but I'm going to start by giving a big shout-out to the one I know best, *Geranium* x *cantabrigiense* 'Biokovo' — which has been a stalwart ground cover under cedars in my front yard. If you have cedars, you know they gulp up all the moisture anywhere in the vicinity. And you might have wondered if anything can thrive under them — or should I say "over" them, since the problem is the cedar's roots, and anything planted over those roots has a daunting competitor.

I started with one Biokovo geranium many years ago, plopped it down under the dense shade of cedars (that I could not convince my husband to cut down), and ignored it while I busied myself with my young children. That one little plant spread happily, healthily, and with nary a sign of deer or rabbit browsing, and now that my children are grown, it occupies a large swath with no sign of age or decline. Wish I could say the same for myself!

***Geranium* x *cantabrigiense* 'Biokovo'**

Geranium x cantabrigiense 'Biokovo'
Photo: Cathy Caldwell

But before I gush on about this geranium, let's get our terms straight. 'Biokovo' is a true geranium, sometimes referred to as a hardy geranium so as not to be confused with the summer bedding plants, sometimes called zonal geraniums, which are actually Pelargoniums. The true geraniums are also commonly called cranesbills.

Now back to my beloved 'Biokovo' — a low, mounding perennial with pale pink blooms in late spring, and evergreen foliage that turns scarlet and copper in fall. *Geranium* x *cantabrigiense* is a sterile hybrid geranium developed in 1974 by Dr. Helen Kiefer of the Cambridge University Botanic Garden in Cambridge, England, by crossing *G. macrorrhizum* (the bigroot geranium discussed in detail below) and *G. dalmaticum.* The cultivar 'Biokovo' was a naturally-occurring hybrid discovered in the Biokova Mountains in Croatia. www.missouribotanicalgarden.org/PlantFinder.

'Biokovo' geranium makes a good "spiller" on a semi-shady walkway.

The blooms of 'Biokovo' are actually white with a tinge of pink and darker pink stamens, but the overall effect is that of a blush pink. You will get a few repeat blooms if you shear off the flower stems after blooming, but it's not necessary. This plant has gotten almost no care from me, although after about 15 years of neglect, it occurred to me to give it a thin layer of compost. Since it chokes out weeds — even the vinca minor that impeded its path — I have almost never had to weed it. So basically this plant can thrive in whatever situation it finds itself — including the poor, dry soil under my cedars. I'm sure this plant will do the same in all manner of dry, shady conditions. No surprise that 'Biokovo' was named the 2015 Perennial Plant of the Year by the Perennial Plant Association. See news.aces.illinois.edu/news/2015-perennial-plant-year-geranium-x-cantabrigiense-'biokovo'.

Bigroot geraniums

'Bevan's Variety' bigroot geranium, courtesy of Cornell University.

There are other true geraniums that are well-known for the same characteristics as 'Biokovo' — including many of the so-called "bigroot geraniums," whose scientific name is *Geranium macrorrhizum.* These plants are very similar to their cousin 'Biokovo' — although this type can apparently spread by self-seeding, while 'Biokovo' spreads only via its rhizomes. My research indicates that the bigroot geraniums are big favorites of many gardeners and garden writers.

There are several bigroot cultivars to consider:

***Geranium macrorrhizum* 'Bevan's Variety'** has a magenta bloom and is about 1 foot tall. For more information, check out this plant's profile at www.missouribotanicalgarden.org.

'Ingwersen's Variety' has pale pink blooms — like 'Biokovo' — and is about 18″ tall. See more about this cultivar at www.missouribotanicalgarden.org/PlantFinder.

Cornell University lists the following additional cultivars to try:

'Album': 1′ tall plants with white blooms with showy pink stamens.

'Czakor': 1′ tall plants with magenta blooms. Purple autumn leaves.

'Spessart': deep pink blooms that produce showy seedheads.

— "Geranium, Bigroot," Cornell Univ.Growing Guide, www.gardening.cornell.edu/homegardening.

Epimedium x youngianum 'Royal Flush'

Epimediums

Epimediums, commonly called bishop's hat or barrenwort, are another easy-care groundcover that can manage quite well in dry shade. For an extremely informative article on epimediums, look no farther than a past issue of *The Garden Shed*, pmgarchives.com/epimediums, by Pat Chadwick. Pat knows her epimediums! For information about recommended varieties, you can rely on Pat's article. According to the Missouri Botanical Garden, epimediums tolerate rabbits, deer, drought, heavy shade, erosion, dry soil, and shallow-rocky soil. Need we say more?!

Variegated Solomon's seal makes an upright background for 'Biokovo' geranium

Solomon's seal (*Polygonatum)*

Solomon's seal is part of a large genus of rhizomatous plants that has managed quite well in my under-the-cedars garden. It is grown mostly for its foliage, and the variegated type — *Polygonatum odoratum* 'Variegatum' — is deservedly popular. There are quite a few varieties to choose from, and you'll find a helpful listing in an article on the Wisconsin Master Gardeners website, wimastergardener.org

Hellebores

Hellebores are recommended for dry shade, and I have had good luck with them under my cedars. The genus *Helleborus* contains about 20 species

and subspecies. I've grown both the *Helleborus orientalis* (sometimes called Lenten rose) and the so-called "stinking hellebore" — *Helleborus foetidus*. It's the latter that I just adore. The common name stinking hellebore comes from *foetidus*, which is Latin for fetid or foul smelling, but I've never smelled a thing, though I've read that there is a musky odor if you brush against the foliage or bloom stalks. This plant is truly amazing both for its large, dramatic chartreuse flower stalks and its long bloom time, from late January into May.

Stinking hellebore at the Cambridge University Botanic Garden. Photo: Magnus Manske

Go Native

The native species of hardy geranium is sometimes called spotted cranesbill (*Geranium maculatum*) is not familiar to me, but if you find it works in your dry, shady garden, please let me know. I'd like to try it.

And don't forget our native ferns, several of which are good options for dry shade, including:

- **Christmas Fern** (*Polystichum acrostichoides*)
- **Hay Scented Fern** (*Dennstaedtia punctilobula*), which is an agressive spreader that can form

colonies that smother weeds, according to that handy handbook, P*iedmont Native Plants: A Guide for Landscapes and Gardens,* published by the Thomas Jefferson Soil & Water Conservation District as a supplement to the website, Piedmont Native Plants Database, www.albemarle.org/nativeplants.

For a longer list of plants — including a few shrubs — that can handle dry shade, I recommend an article titled "Problem Solver Plants for Dry Shade," on the Missouri Botanical Garden website, www.missouribotanicalgarden.org/help-for-the-home-gardener/advice-tips-resources/visual-guides/-plants-for-dry-shade

SOURCES:

P*iedmont Native Plants: A Guide for Landscapes and Gardens,* published by the Thomas Jefferson Soil & Water Conservation District as a supplement to the website, Piedmont Native Plants Database, www.albemarle.org/nativeplants (searchable). Note: The TJSWCD has this guidebook for sale, $10 each, at 434-975-0224, Ext. 102, or email mary.eiserman@tjswcd.org.

"2015 Perennial Plant of the Year Geranium x cantabrigiense 'Biokovo'," news.aces.illinois.edu/2015-perennial-plant-year-geranium-x-cantabrigiense-'biokovo'

"Perennials for Dry Shade," Ill. Ext., extension.illinois.edu/perennials/DryShade

"Geranium, Bigroot," Cornell Univ.Growing Guide, www.gardening.cornell.edu/homegardening

www.missouribotanicalgarden.org/PlantFinder/geranium macrorrhizum

"Elegant Epimedium—Foliage and Flowers of Subtle, Sophisticated Beauty," by Barbara Blossom Ashmun, www.BrooklynBotanicGarden.org/epimedium (2007)

"Epimedium," *The Garden Shed,* pmgarchives.com/article/epimedium/

Native Perennials That Bloom in July

By Melanie | July 2018 - Vol.4 No.7

July can be the forgotten gardening month. The excitement of new annuals and planting may be starting to fade out as vacation and family barbecues move to the forefront in midsummer. The heavy rainfall in June could almost make us forget that our beloved plants still need a drink. We tend to neglect deadheading as we focus on other tasks. Not to mention "Who will tend to the garden while I am away on vacation?" — sometimes leading to a crispy brown flowerbed upon return. The same thing often happens in nurseries and garden stores as the wilted plants are now discounted. Is summer over? Is there no bloom left?

July can be full of efflorescence! Your ornamental gardens can flourish with less maintenance if you add native plants, which means more time for family fun and summer vacation.

Photo from Virginiawildflowers.org,

Cardinal flower *(Lobelia cardinalis)*

It is believed that the French queen Henrietta laughed when this flower was introduced to Europe in 1626. It reminded her of the high-ranking officials in the Roman Catholic Church, and therefore, was named after the cardinals' bright red robes. Its genus — *Lobelia* — was named after the French botanist Matthias de L'Obel, who wrote under the name Lobelius. The cardinal flower is in the bluebell family, Campanulaceae. It self-seeds and sends out shoots. It can be divided after a few years. It grows better in moist, rich, organic soils (pH 5.5-7), and it will thrive in filtered light with morning sun. The basal leaves are evergreen so that they can store energy for future plants. The cardinal flower is pollinated by hummingbirds. They are the only pollinators with long enough tongues to reach the nectar through the long tubular passage. When it reaches this sweet drink, the

hummingbird's head will get covered in pollen. *Lobelia cardinalis* is considered to be deer resistant!

Picking cardinal flower in the wild has reduced its population. Please look and do not pick when finding these glorious creatures in nature. Although Native Americans were known to use this plant for typhoid and stomach ailment, it is considered highly toxic.

I had always assumed that the native cardinal flower would be a beautiful, hardy, and easy-going plant to introduce into the July ornamental garden. However, a recent event gave me pause. It all began when the owner of one of the gardens I tend asked me if I had pulled up a cardinal flower during an early spring clean-up. I was pretty sure I hadn't, but the perennial wasn't showing signs of returning this summer. I was absolutely frantic. What had happened? For a passionate gardener, there is nothing worse than thinking you accidentally uprooted a beloved plant.

After, more research, reconnaissance, and pondering plant logic as well as my own actions, I decided there could be many factors as to why the cardinal plant might not return every year in the same place. First, (to my dismay) I had to admit that I might have accidentally picked it out. Perhaps the cold this year had killed it. Also, I have read that cardinal flower can be short-lived. The plant might be missing for reasons I just can't know! Yet, with all the mystery this plant can conjure, it does add a tremendous amount of vibrancy, so it's well-worth a gardener's efforts.

But I do recommend taking care when cleaning up around cardinal flowers in the fall or early spring. And don't spread the mulch too thickly; you don't want to cover up the base of the plant, or seeds or new seedlings. This plant has evergreen basal leaves which need exposure to the sun for continued photosynthesis through the winter. A mulch can be tucked underneath the leaves to protect the shallow roots through winter, but the plant may die if the basal rosettes are covered with leaves or mulch. Va.NativePlantSociety/vnps.org/wildflowers-of-the-year/1991-cardinal-flower-lobelia-cardinalis.

I have read that the great blue lobelia (*Lobelia siphilitica)* — cousin to the cardinal flower — may be easier to grow, and has a similar preference for moist soil. Rain, bog gardens, or wet spots would be ideal spaces to grow the blue lobelia. These plants naturally grow next to streams and therefore could be planted near ornamental ponds and on the banks of water features. The vivid color and shape of these plants certainly makes the indeterminate outcome of its return worth the journey.

Digital resources for Cardinal flower:

www.Univ.ArkansasExtension.edu/cardinal-flower

www.monticello.org/site/house-and-gardens/in-bloom/cardinal-flower

https://virginiawildflowers.org/2015/08/01/cardinal-flower/

VaNativePlantSociety.org/wildflowers-of-the-year/1991-cardinal-flower-lobelia-cardinalis/

Photo: Virginiawildflowers.org,

Photo from Monticelloshop.org.

Turk's cap lily (Lilium superbum)

I wanted to mention the Turk's cap because it is part of the family Liliaceae, the first recorded plants. They were documented as the ancient Greek flowers of Hera and as Eve's tears when she was banished from the garden of Eden. It is magnificent to think about how this beautiful flower has been looked upon for thousands of years and yet still grows in our gardens today. I haven't seen Turk's cap in any of the gardens I work in, probably due to the fact that deer love to eat them — so much that the overpopulation of deer due to urban sprawl has almost wiped out Turk's cap. Named from the the petals that curve backward like a hat, this plant is hardy and likes moist rich soils like the cardinal plant (pH 5-6.6). It can grow in partial shade, needing to sunbathe at least two hours a day. What's unusual about this plant — in addition to its huge, multiple blooms — is its preference for very moist soil.

I have been working with an owner at a large historic estate south of Charlottesville incorporating natives into his ornamental beds. He asked us if we could restore the areas by the pool by planting the so-called "tiger lilies." He remembered his mother having these plants in these beds when he was a child. He was referring to the non-native orange daylillies — genus *Hemerocallis* — that have escaped cultivation and frequently appear on our roadsides. I went ahead and planted the "tiger lilies" because that is what he wanted, although I should have encouraged him to plant Turk's cap because it is the native plant. I'm now hoping that we can remove the daylilies and replace them with Turk's caps. Of course, we will need to assure the proper moisture level and secure the bed with deer resistant borders in order for the Turk's cap bed to be a success.

Digital resources for Turk's cap:

http://www.mlbs.virginia.edu/organism/lilium_superbum

https://extension.umd.edu/hgic/earth-friendly/turks-cap-lily

www.missouribotanicalgarden.org/PlantFinder/LiliumSuperbum

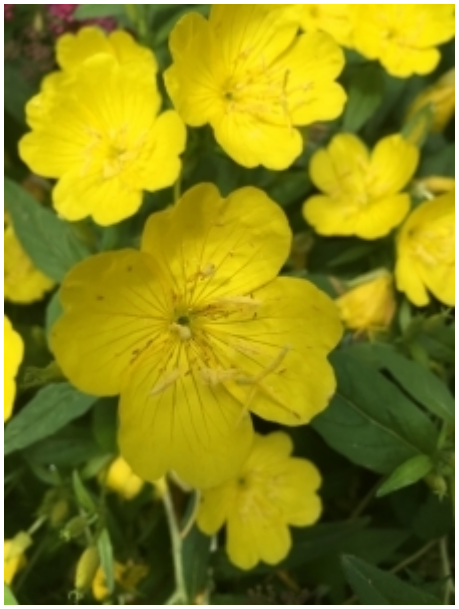


Photo by Nona Kaplan.

Sundrops (Oenothera fruticosa)

I truly fancy the evening primrose family. I suppose the initial connection is the reminder of my native Mississippi land. These delicate flowers bring back childhood days of picking bunches of buttercups and playing with them in a fairy land of pink and yellow petals. The pink primroses grow wild on the banks of High Street near the bus stop. I pass them daily on my way home and the sight always pleases me after a hard day of gardening. It puts everything I have done into retrospect. The simple life. The joy of continuous growth without the touch of the human hand.

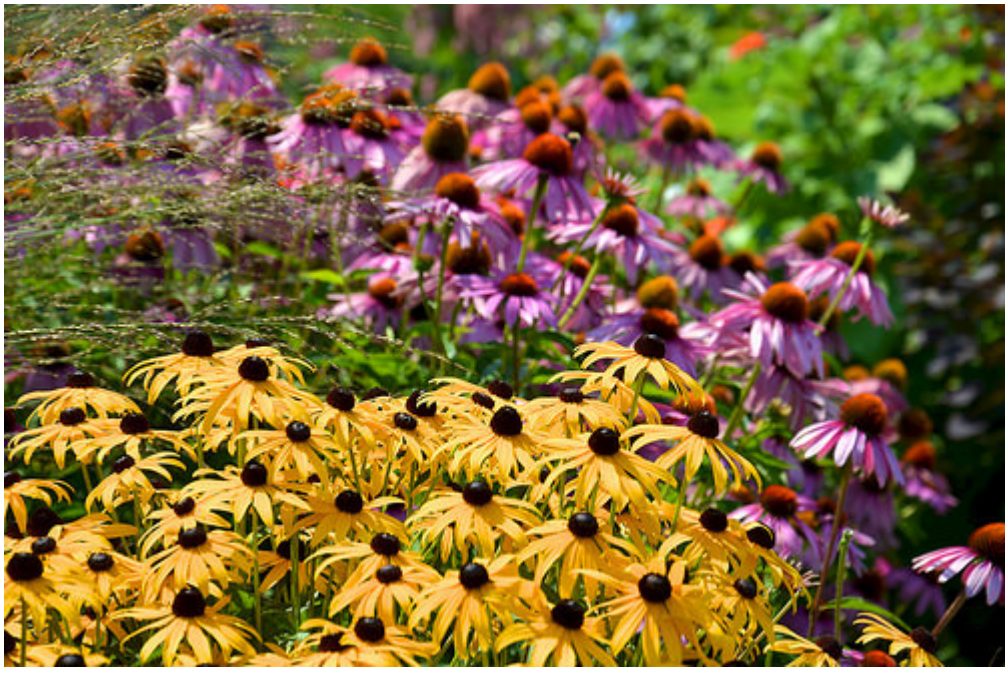
I noticed the yellow sundrops in a garden I work in this year and found this intense yellow color a very happy and therapeutic delight. It really allured me to its presence this year as if to assure its recognition into the ornamental garden.). Cherokee Indians are known to have used this plant for its medicinal properties.

This plant is easy to grow in average to moderately fertile, well-drained soil (pH 5-6) in full sun. It can tolerate poor soil and light shade. If its foliage declines in summer after flowering, you can cut the stems back to the basal rosette. Sundrops will slowly spread via these basal rosettes.

Digital resources for sundrops:

www.MissouriBotanicalGarden.org/PlantFinder

https://virginiawildflowers.org/2015/08/01/sundrops/



Purple coneflower and Black-eyed Susans at Lake George in New York. Photo: Joe

Shlabotnik.

Purple coneflower *(Echinacea purpurea)*

This trendy immune-boosting plant is a go-to with Black-eyed Susan for a hardy, low maintenance long bloom in the summer. It can reseed itself and can be divided in the fall. It grows most anywhere, except in really wet, soggy soils. It tends to come back with brilliance each and every year.

Black-eyed Susan *(Rudbeckia fulgida or hirta)*

My family called my sister “Black-eyed Susan” because she is the only one in the clan with dark brown eyes. Since they called me “Coconut” because I was so hardheaded, Black-eyed Susan remains more forever dear to my heart. I love the idea being called a beautiful flower rather than a nut with an impermeable shell! This plant, like the coneflower, is in the aster family, sometimes called the sunflower family. Just a note: I adore the sunflower so much that I still jump with joy whenever I see them. It becomes quite the annoyance with my family when it startles them. Below there is a link from the Virginia wildflower website that discusses the differences between the orange coneflower and Black-eyed Susan. Orange coneflowers grow most anywhere as well and can tolerate a lot. Therefore these flowers together can leave a lasting impression all summer and provide food for the birds in winter.

Digital resources for coneflower and black-eyed Susan:

www.missouribotanicalgarden.org/Echinacea purpurea

www.missouribotanicalgarden.org/PlantFinder/Rudbeckiahirta

www.MissouriBotanicalGarden.org/Rudbeckia fulgida

https://virginiawildflowers.org/2015/07/15/purple-coneflower/

https://plants.usda.gov/plantguide/pdf/cs_ecpu.pdf

https://virginiawildflowers.org/2015/08/29/orange-coneflower/

https://virginiawildflowers.org/2015/09/08/black-eyed-susans/

Bee Balm *(Monarda)*

This is another plant I’d like to suggest for low maintenance — Monarda. It is colorful and attracts many pollinators. There are many species of this plant that you can pick up from local nurseries. It grows well with planats having similar pH and soil types, such as purple coneflower and Black-eyed Susans. Bee Balm can be an aggressive spreader and may need to be discouraged from growing too wildly in ornamental beds.

Photo: Virginiawildflowers.org

The list of July blooming natives is rather long. To encourage the restoration of native summer bloomers and to find even more choices that will suit your particular needs, please see the following plants and look at their links. These natives can also be found in the books referenced at the end of the

article.

Yellow-Fringed Orchid *(Platanthera ciliariaris)*

https://virginiawildflowers.org/2015/08/01/yellow-fringed-orchid/

https://www.fs.fed.us/wildflowers/plant-of-the-week/platanthera_ciliaris.shtml

Photo from Virginiawildflowers.org, posted by Gloria 2015.

Coreopsis

https://virginiawildflowers.org/2015/06/04/lance-leaved-coreopsis/

https://ngb.org/year-of-the-coreopsis/

Strawberry bush *(Euonymus americanus)*

https://plants.usda.gov/plantguide/pdf/pg_euam7.pdf

https://mgnv.org/euonymus-americanus-strawberry-bush/

Photo: www.wildflower.org, Alan Cressler.

There are so many delightful native plants that can be introduced to ornamental gardens. These blooms can be so enticing that mid-summer gardening will not be forgotten nor neglected. Plus, by incorporating them into your beds, you may have an easier time maintaining your gardens, which could create less stress when planning vacation and family barbecues.

SOURCES:

Gardening with Native Wild Flowers (Samuel B. Jones, Jr., and Leonard E. Foote, 1997)

Growing and Propagating Wild Flowers (Phillips, 1985)

The New England Wild Flower Society Guide to Growing and Propagating Wildflowers of the United States and Canada (Cullina, 2000)

Native Plants of the Northeast: A Guide for Gardening and Conservation (Leopold, 2005)

Southeastern Wildflowers (Midgley, 1999)

Wildflowers Around the Year (Ryden, 2001)

*Wildflowers in Color: A Field Guide to More Than 250 Wildflowers of Eastern North America (*Stupka, 1994)

*Wildflowers of the Blue Ridge and Great Smoky Mountains (*Adkins, 2005)

July Tasks and Tips in the Ornamental Garden

By Melanie | July 2018 - Vol.4 No.7

The month of June has been so wet that it is hard to think about watering the July garden. Weeding becomes a bigger chore as a jungle grows with all the rain. So far the garden feels like a small rainforest with some plants' leaves looking like they are either on steroids or that they have fallen with jaundice. Hopefully all will balance out as nature has a tendency to do.

It is important to be aware of **how much rain has fallen in your garden each week.** A rain gauge can be very helpful when determining whether or not plants have had about an inch of water that has been absorbed deep into the soil. Spraying the leaves does not give the plants enough water to survive. It may even burn the leaves if the sun's rays penetrate through the water drops. The best time to water is in the early morning or evening around twilight.

Deadheading can be a big July chore. Pinching or clipping dead blooms can encourage flowering later in the season. Last year I used this technique for purple coneflower and had blooms well into late September.

Cutting back spent annuals by 1/3 can also help revive the plant and make gardens appear tidy and refreshed.

Weeding, Weeding, and more weeding. Did I mention weeding? Is there a “Keep calm and weed on” sign out there somewhere? Weeding is vital to the upkeep of gardens. It’s like cleaning your house, or changing your oil. It needs to be done, and the more you do it, the easier it gets. Weeds can be discouraged and may appear less and less each year.

If you know your garden, then you know your weeds and you know what they look like in all stages: seedlings, teenagers, and full bloom. Try not to reach the stage where you find yourself running out of the house and yanking them out of the bed before they drop seeds. You are doing a great job if you can get them at any of these stages! They seem to grow all at once — and again the next day! Weeding is also a great opportunity to find any pests that are hiding out in the garden!

July can be a good time to add compost and light mulch to ornamental beds; it can help them survive a drought.

If you’re constructing a To-Do List for July, you’ll find excellent help at the links below:

pmgarchives.com/TheGardenShed/Tasks&Tips/July2017

pmgarchives.com/TheGardenShed/Tasks&Tips/July2016

pmgarchives.com/TheGardenShed/Tasks&Tips/July2015

Gardening in Clay

By Ralph Morini | July 2018 - Vol.4 No.7

We all have a sense that soil plays a key role in our gardening success. In fact, different mineral content, textures, and structures offer very different growing conditions and may be more or less suitable for specific plants. In our locale, the Virginia Piedmont, the native soils typically have a shallow sandy loam surface with a clay-based subsoil, colored red or yellow-red from oxidized iron weathered from native minerals. As good as clay is for bricks and flower pots, it is problematic for gardeners. The good news is that with regular amendment and smart management, its high moisture holding ability and mineral content provide the basis for building clay into a productive growing medium.

Most of us recognize clay by its stickiness and clumpiness when wet and concrete-like hardness when dry. Let's go a little deeper into soil composition generally and clay specifically, discuss actions we can take to make it a more productive soil, and finally identify some clay tolerant plant options.

Soil Types and their Differences

Soil is a living, breathing natural entity comprising solids, liquids and gases. It performs multiple functions including providing a habitat, recycling wastes, filtering water, and is a medium for plant growth that offers structural stability, while retaining and supplying nutrients.

The ideal soil is roughly 50% pore space and 50% solids with the pores filled with equal parts air and water. Activities like tilling increase pore space while compaction tends to reduce it. The solids half is ideally 45% mineral and 5% organics. The solids are a blend of mineral particles derived from weathered rock and organic matter and are broken into three size classes:

- Sand: the coarsest particles, .05-2.0 mm in diameter
- Silt: mid-size particles: .002-.05mm in diameter
- Clay: the finest particles: less than .002mm in diameter.

Soils contain a blend of these particles and clay properties become evident in soils with higher than 20% clay content. A desirable blend is something like 40% sand, 40% silt and 20% clay.

This link explains simple ways to estimate your soil composition.

Clay: pluses and minuses

Clay soils are fine-textured, heavy soils, with very small particles, predominantly mineral and little organic matter. They are "sticky-smooth" when wet, and form balls and ribbons when shaped by hand. A smoother feel indicates a higher proportion of clay particles. A gritty feel indicates more of a blend of particle types and sizes. A red color indicates good aeration. Grayish color shows poor drainage.

Wet clay is sticky and moldable when wet.
Photo courtesy of HGTV.com

Clay's small particles increase pore space but also promote aggregation and are easily compacted when wet. It drains slowly when wet and hardens to the point where it may be untillable when dry. Because it drains slowly, it warms more slowly than well-drained soils in spring.

On the positive side, clay's high water and nutrient-holding capacity give it good growing potential, with a bit of gardener intervention.

The red clay indicates iron content and good aeration.The gray clay is fine grained and poorly aerated.

Photo credits to geokkhim.blogspot.com and soilquality.org, respectively.

Clay Fix-it Tactics

There are a number of straightforward steps that the home gardener can take to improve the productivity of clay soil:

Start with a soil test:

- Clay soils vary in pH and may require correction to get into the commonly recommended pH range of 6.3 to 6.8. Agricultural Extension soil tests will also provide guidance for optimizing levels of phosphorus, potassium and micronutrients. You can pick up a kit for collecting a soil sample at the local Extension Office, 460 Stagecoach Road in Charlottesville.

Avoid compaction:

- Minimize or eliminate walking and equipment travel over planting areas. Creating permanent pathways that allow access to planting areas without treading on them is a good idea.
- Never work clay when wet. It will clump and defy cultivation, requiring a re-do as it reaches a workable moisture level or presenting a big problem if it dries into said clumps. On the other hand, don't over work it or you destroy its structure.
- Don't overtill. Turning the soil over completely will reduce porosity, adding to soil density, increasing runoff, slowing drainage, and reducing nutrient availability to plants. It will also tend to compact the layer beneath the tilled section. Using a spade or rotary tiller only as deep as 6-8 inches — just to loosen the planting zone — is recommended. Smooth out only the soil surface.

Add organic material:

- Apply 3-4 inches of compost, well-rotted manure, leafmold, etc., on top of the beds and work it into the soil 4-6 inches deep, in the fall or prior to planting in the spring. This will improve soil structure and reduce compaction, promoting better water infiltration, drainage, and retention, as well as nutrient availability.
- Mulch with organic materials such as bark, sawdust or wood chips and allow it to work into the soil naturally over time
- Plant cover crops such as clover, timothy hay, hairy vetch or borage. The cover crop roots act as a living amendment. Legume crops increase nitrogen availability and protect against erosion over the winter. Plant a month before the first killing frost. Work into the soil before it goes to seed and allow it to decompose for a couple of weeks before planting.
- Adding organic material and tilling in the fall allows time for decomposition prior to planting, and freezing-thawing during the winter can help to loosen the soil and reduce compaction without overworking it.
- Prior to planting, break up large surface clods and rake level. Small seeds germinate best in fine, smooth surface soil. As noted above, avoid pulverizing deeply, which can harm soil structure.
- Manage runoff. Building a garden of lighter soil surrounded by heavy clay can create a drainage issue if the surrounding clay traps water in the garden. Diverting runoff so it doesn't enter the garden is a good idea to prevent a potentially damaging drainage issue.
- Be patient. Over time, soils tend to return to their native state. It takes some years of amendment to create a significant improvement and ongoing commitment to maintain it.

Raised beds offer a way to sidestep problematic clay soils
Photo courtesy of saga.co.uk

Consider raised beds

- Raised beds offer a way around problems with a clay soil environment, or any problem soil for that matter. Build beds to dimensions that allow working them without standing on the soil. Loosen the base clay under the beds to reduce potential drainage issues from the beds. Fill them with garden soil from a reputable source and follow the soil improvement steps mentioned above for continuous improvement of your soil and growing conditions.
- In addition to providing a quicker fix to difficult soil conditions, raised beds can make it easy to utilize intensive planting techniques, simplify weeding requirements and reduce water consumption.

Trees and Landscape Plants for Clay Soils

Modifying clay soils for vegetable gardens or flower beds is one thing. Tree and landscape planting however is more a matter of choosing plants that can do well in the native soil and planting them in a way that makes success most probable.

The recommended way to plant a tree or shrub is a bit different for clay than for well-drained, looser soils:

- Prepare the plant. Remove it from its container and if, as is likely, its roots are curling around the root ball, cut the roots with a knife, from top to bottom of the root ball, every 4-6 inches. This releases the roots to grow out from the plant and prevents girdling problems after planting.
- Dig the hole just large and deep enough to fit the root ball. Use the existing natural soil for backfill, without amendment. Having a consistent soil type will help the plant adapt and prevent the hole from becoming a water pool that is unable to drain into the surrounding clay.
- Elevate the top of the root ball about 2 inches above the soil line. The water needs to drain away from the plant, again to minimize pooling issues and prevent root rot.

For plants other than trees and shrubs, matching pH preferences with your soil and avoiding plants that don’t like excessive moisture is a good start. Some common suggestions are switchgrass, asters, Russian

sage and hostas. These links include suggestions for various plant types from the University of Maine Extension ("Trees and Shrubs for Clay Soil") and www.missouribotanicalgarden.org/ProblemSolver Plants for Clay Soil – Perennials.

Take Heart

Clay is a hard soil to love. Can't work it when wet, can't even penetrate it when dry, and it rarely seems to be "just right". But, with appropriate management and amendment, a gardener can take advantage of its mineral content and water/nutrient holding capacity and make it a very satisfactory growing medium. Like life, our soil is what we make of it.

References:

https://content.ces.ncsu.edu/extension-gardener-handbook/1-soils-and-plant-nutrients

https://pubs.ext.vt.edu/content/dam/pubs_ext_vt_edu/426/426-313/426-313PDF.pdf

https://durham.ces.ncsu.edu/files/library/32/UNH%202.PDF

https://www.thespruce.com/understanding-and-improving-clay-soil-2539857

https://content.ces.ncsu.edu/extension-gardener-handbook/1-soils-and-plant-nutrients

Source for featured photo: gardeningknowhow.com

On the July calendar: Through the Garden Gate Tour and Garden Basics Class

By Cathy Caldwell | July 2018 - Vol.4 No.7

July 14

Through The Garden Gate: Leslie Harris Garden
July 14 @ 9:00 am – 12:00 pm
Leslie Harris Garden, 2107 Minor Road
Charlottesville, VA

A double lot on a residential street near the University, this garden is now cultivated by Leslie Harris, a professional gardener who is the owner and principal of LH Gardens, a residential gardening service.

Admission is $5 at the door

Find out more »

July 21

Garden Basics: Food Preservation
July 21 @ 2:00 pm – 4:00 pm
Trinity Episcopal Church, 1118 Preston Avenue
Charlottesville, 22903

Preserve summer's bounty by learning the basic methods of preserving fruits and vegetables by freezing, drying, pickling and making jams and preserves.

COST: FREE

HOW TO REGISTER: Send your name to info@pmgarchives.com.

Find out more »

In the Vegetable Garden-July

By Cleve Campbell | July 2018 - Vol.4 No.7

If you live in Central Virginia and like rain, you would have loved the month of June! Now we gardeners love rain but too much of a good thing can cause problems. During the month of June we received more than twice the amount of rain as normal.

Wet weather and plants are usually a match in heaven. However, too much of a good thing can be bad for our vegetable gardens, especially if the soil becomes waterlogged and stays that way, as poorly-drained clay soil tends to do. All that water can cut off the air supply to the plants' roots and to the microoranganisms that live in the soil. It can lead to root rot. In addition to root problems caused by excessive rain, wet weather can cause diseases via bacterial and fungal pathogens fostered by long term moisture on foliage and root systems.

There are two tomato plant diseases that are expected to do very well this summer because of the abundance of rainfall we had in June: **early blight** and **septoria leaf spot.**

Early Blight spots. Note concentric rings in a bull's eye pattern that can be seen in the center of the grayish blotch.
Photo: Paul Bachi, University of Kentucky, Bugwood.com

Early blight is caused by the fungus *Alternaria solani*, and it is common in Virginia. It occurs to some extent every year wherever tomatoes are grown. Don't be confused by the name "early" as the disease may occur at any time during the growing season. Early blight causes irregular, brown leaf spots (lesions) that range in size up to ½ inch in diameter.

The most important diagnostic indicator of Early Blight is the formation of dark, concentric rings within the lesion, giving the spots a target-like or bull's eye appearance, and often causing the leaf to turn yellow, dry up, and fall off. The lesions initially appear on the lower, older leaves near the base of the plant and can progress rapidly up from the lower foliage to new growth during wet weather.

Early Blight

Photo: Gerald Holmes, California Polytechnic State University at San Luis Obispo, Bugwood.org

Septoria Leaf Spot is caused by the fungus, *Septoria lycopersici*, characterized by several small, gray, round leaf spots with dark borders. A few black, pinhead dots may be seen within the spots.

As with Early Blight, the spores survive in residues from diseased plants. Septoria leaf spot can occur anytime during the growing season. Septoria leaf spot disease first develops on the older leaves nearest the ground and continues upward on new leaves as the growing season progresses. Heavily-infected leaves may scorch and wilt, giving the plant the appearance of a wilt disease. The fruits are rarely infected; however, the leaf loss reduces fruit yield and quality, and the exposed fruits are more susceptible.

Septoria Leaf Spot. Note the white pin head in middle of spot. Photo: Bruce Watt, University of Maine, Bugwood.com

For more information on Early Blight, Septoria leaf spot and other tomato diseases check out our Garden Shed article Tomato Diseases.

Here is our list of July vegetable gardening tips and tasks:

July in the vegetable garden is primarily a month of maintenance: watering, applying additional

mulch, weeding, and harvesting. The ambitious gardener may take on additional tasks, such as sequential planting of select vegetables, and planning and preparing for the planting of fall crops.

July is a good month for filling in empty spaces left from those early-spent spring crops such as lettuce, English peas, potatoes, and radishes. July planting may include beans and squash and a host of other vegetables. Take a look at the handy-dandy chart below, which was developed using the Virginia Cooperative Extension Publication 426-331 "Vegetable Planting Guide and Recommended Planting Dates."

July 1-6	July 7-13
Bush Beans	Bush Beans
Pole Beans	Pole Beans
Lima beans	Lima beans
Wax Beans	Wax Beans
Cucumbers	Cucumbers
Eggplant*	Eggplant*
Muskmelons	Muskmelons
Okra	Okra
Peppers	Peppers
Pumpkins	Pumpkins
Southern Peas	Southern Peas
Sweet Corn	Sweet Corn
Summer Squash	Summer Squash
Winter Squash	Winter Squash
Sweet Potato	Sweet Potato
Tomatoes*	Tomatoes*

July 14-20	July 21-31
Bush Beans	Bush Beans
Pole Beans	Pole Beans
Lima beans	Lima beans
Wax Beans	Wax Beans
Cucumbers	Cucumbers
Eggplant*	Eggplant*
Muskmelons	Okra
Okra	Peppers
Peppers	Pumpkins
Pumpkins	Southern Peas
Southern Peas	Sweet Corn
Sweet Corn	Summer Squash
Summer Squash	Winter Squash
Winter Squash	Tomatoes*
Tomatoes*	

*** Denotes Transplants**

The suggested dates may vary for different areas.

Not sure of what varieties or cultivars of vegetables to plant? A comprehensive list of recommended vegetables for Virginia can be found in the Virginia Cooperative Extension Publication, "Vegetables Recommended for Virginia", now available from the Fluvanna County Extension Office.

Weeding

It's important to control weeds around vegetables because weeds will out-compete vegetable plants for nutrients, water, and sunlight. The best method to control weeds is by mechanical extraction, meaning good old-fashioned weed-pulling or the use of a hoe. For small weeds, the "**hoop" or "stirrup" hoe** is highly recommended because it allows for shallow cultivation. Another plus for the hoop hoe: it doesn't bring weed seeds to the surface of the soil! Many weed seeds require sunlight to germinate, so deep cultivation or

utilizing a tiller often brings seeds to the surface of the soil, facilitating seed germination for a new crop of unwanted weeds.

Hoop or Stirrup Hoe

More Tips and Tasks for July:

- To **save space** in your garden, construct temporary or permanent woven wire fences which will provide vertical support for runner varieties of beans, as well as for cucumbers. Plants can be trained to climb the fence, both saving space and making harvesting easier since the vegetables will be hanging at a convenient height.
- **A Threat to Basil** is a fungal disease specific to sweet basil called **fusarium wilt** of basil. The fungus attacks the water-conducting tissue (xylem) within the stem. Infected plants will grow normally until they are six to twelve inches tall. Then the plants become stunted and will suddenly wilt. The stem may become curved, often referred to as a shepherd's crook, and there will be brown streaks along the stems. Once established, the fungus can over-winter and survive many years in the form of spores, ready to cause new infections of basil or other members of the mint family that are planted in the same area. Currently, there is no fungicide approved for the treatment of this fungal disease, but it can be controlled somewhat by removing all diseased plants, by avoiding planting basil in the same location, and by planting disease-resistant varieties. Additional information on fusarium wilt of basil is available at ncsu.edu/-fusariumbasil

Fusarium wilt of basil (Fusarium oxysporum, f. sp.

basilicum). Photo: Debbie Roos, NCSU Agricultural Extension Agent

- **Pepper plants** are more productive if given appropriate moisture. Placing mulch (such as wood chips or leaf mulch) around plants will help retain soil moisture and reduce the need for frequent watering. In addition to conserving water, mulch provides the extra benefit of being a weed barrier.

Continue to monitor water moisture levels around plants. The rule of thumb is that plants need one inch of water per week to maintain productivity. Mulching reduces the need for frequent watering and improves yields. **Early morning is the best time to water**. Evening watering is less desirable because leaves that remain wet through the night are more susceptible to fungal diseases.

- **Okra blossoms are** one of the showiest blooms in the vegetable garden but they only last one day. Keep your eyes peeled if you don't want to miss them. If the flower has been pollinated, a miniature okra pod can be seen beneath the wilted flower.
- Wondering if your **blueberries are ripe enough to pick?** Just try pulling a few berries from the stems. If they come off easily, they are ready to harvest. If not, they need to ripen more. **Cover with netting** or the birds will beat you to the fruit.
- Dry weather causes **Swiss chard to bolt** or **prematurely** go to seed. Water your plants to extend the season.
- **Cucumbers** develop a **bitter taste** if the soil is not kept **consistently moist.** Leaf mulch will help maintain soil moisture.
- **Harvest cucumbers** for pickling when they reach 2-4 inches in length; for table use, harvest when no longer than 5-6 inches. Remove any over-ripe cucumbers to encourage continuous production.
- **Withhold water on potatoes when the plants begin to die down.** Water and fertilizer may disturb the dormancy stage and cause regrowth, and may also cause potatoes to crack.
- If **potatoes** are visible along the soil surface, they probably look **green.** This coloration is caused by exposure to light. Green-skinned potatoes will taste bitter. Avoid this problem **by covering potatoes with soil or mulch to protect them from the light.**
- **Pumpkin and squash** blossoms are both beautiful and **edible**. To prepare squash or pumpkin blossoms for an appetizer, pick them after they open. Wash and drain the blossoms to remove insects and dirt, dip them in a flour or beer batter, and fry until golden.
- Although **tomatoes** are self-pollinating, they **need movement to transfer pollen**. If it is hot and calm for several days, **gently shake plants to transfer pollen** and assure fruit set. Hot temperatures can also interfere with blossom set.
- Shredded **Chinese cabbage** is a good hot weather substitute for lettuce in salads and sandwiches. A second crop may be started now for fall harvesting.
- In the summer**, dry soil** may become hard, making it difficult to work and inhibiting seed germination. Plant your succession and fall vegetables when the soil is moist, either after a rain or after watering the area thoroughly the day before you plant. Seeds may be planted in a shallow trench to conserve moisture.
- **Did you know**? Daytime temperatures above 90º F. prevent snap bean flowers from developing.
- **Too many** cucumbers, zucchini, or tomatoes? Think pickles, relishes, and tomato sauces.
- **Don't forget the County Fair!** Show off you gardening abilities by exhibiting fresh vegetables, flowers, and fruits.

Thanks for stopping by *The Garden Shed*. We hope to see you again next month!

Sources:

" Vegetable Planting Guide and Recommended Planting Dates," Virginia Cooperative Extension Publication No. 426-331, pubs.ext.vt.edu/426/426-331

"Weeds in the Home Garden," Virginia Cooperative Extension Publication No. 426-364, pubs.ext.vt.edu/426/426-364

"Basil Problem," NC Cooperative Extension, https://growingsmallfarms.ces.ncsu.edu/growingsmallfarms-fusariumbasil/

Sweet Corn Fritters

By Cate Whittington | July 2018 - Vol.4 No.7

The first local corn is appearing in farmers' markets all across the state — something I look forward to eagerly each year. Last weekend, I picked up a few ears of corn to serve to a multi-generational crowd for dinner. I knew the children would love to gnaw it directly from the cob, but I also knew that their grandparents would prefer a more convenient way of tasting the yellow and white kernels. After much deliberation, I settled on serving fritters–and what a sweet success for everyone gathered around my table!

I'm sure many of you are familiar with *Edible Blue Ridge*, a culinary magazine published quarterly in Central

Virginia. *Edible Blue Ridge*, one of Edible Communities Publications' many magazines, celebrates local foods in our area. In 2010, ECP's cofounders Tracey Ryder and Carole Topalian published a book of regional recipes from across the United States. The following recipe from *Edible Ojai* (California) may be found in their book entitled, simply, *edible*. Its author suggests serving these gems with broiled tomatoes, sour cream, and a light mango-lime salsa.

Ingredients (for 4-6 Servings)

2 cups fresh corn kernels (from 3-4 medium ears of corn)

2 Tablespoons all-purpose flour

2 large eggs, separated

1/4 cup finely chopped spring onions

1/2 teaspoon Kosher salt

1/4 teaspoon smoked paprika

1/4 teaspoon freshly-ground black pepper

1/8 teaspoon ground cayenne

1/4 cup olive oil

1 Tablespoon unsalted butter

Directions

1. In a large bowl, stir together the corn, flour, egg yolks, onions, salt, paprika, pepper, and cayenne. In a large bowl, beat the egg whites until stiff peaks form. Stir one-quarter of the beaten egg whites into the corn mixture. Using a rubber spatula, gently fold the remaining egg whites into the corn mixture in three additions.
2. In a large skillet, heat the oil over medium heat until the butter has melted. Carefully drop some of the corn mixture by tablespoons into the hot oil, taking care not to crowd the pan. Cook each fritter until browned, 2 to 3 minutes. Turn each fritter over and brown the other side, 1 to 2 minutes. Transfer the fritters to a platter lined with paper towels. Sprinkle lightly with salt. Repeat until all of the corn mixture has been used. Serve hot.