March 2019-Vol.5 No.3

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Spicebush (Lindera benzoin)

By Cathy Caldwell | March 2019-Vol.5 No.3

Spicebush in the wild. Photo: Wanda SanJule, Hummingbird Hill Native Plant Nursery

If you're out on a forest trail this month, keep an eye out for the clouds of yellow created by *Lindera benzoin* — our native spicebush — a deciduous shrub whose greenish-yellow blooms appear in March in Virginia. *Lindera benzoin* is remarkable not only for its spring and fall color, but also for its adaptability. It is not fussy about either soil moisture levels nor about pH nor about light. In nature, it is most often found along streams, in floodplains and ravines, but also in dryer upland forests, and is widely distributed throughout eastern North America and in Virginia. Indeed, the Virginia Native Plant Society named *Lindera benzoin* the native plant of the year in 2006. I highly recommend the essay that accompanied that award, VNPS Wildflower of the Year: Spicebush (Lindera benzoin).

Ecologists refer to spicebush as a *facultative wetland* plant, which means it usually occurs in wetlands (estimated probability 67% – 99%), but occasionally found in non-wetlands. It is more abundant in soils that are slightly alkaline. You will rarely see this native shrub in home gardens, but it deserves consideration. It is fairly easy to grow, tolerates both acid and alkaline soil, and can tolerate a wide range of moisture conditions, including

- occasionally saturated or very wet soil;

- consistently moist, well-drained soil;
- occasional periods of dry soil

woodyplants.cals.cornell.edu/plant/325

Spicebush at Chadwick Arboretum & Learning Gardens, Ohio State University, Photo: Dan Keck

Spicebush is a rounded shrub of 4′ to 12‘ high and equal spread. Its simple, eliptical green leaves emerge much later than its spring blooms, and become a showy golden yellow in autumn. If you’re wondering whether you’ve come upon a spicebush, crush some leaves or twigs, which

produce a pleasant, spicy fragrance. The essential oil contained in the leaves, twigs, bark, and berries was traditionally used in folk medicine and as a substitute for allspice. The flowers on the female plant eventually turn into green drupes that mature into bright red berries in fall. Because this plant is dioecious, both male

and female plants must be close enought to permit cross pollination to produce the berries. The attractive berries are hidden beneath the leaves, but are more visible after the leaves drop. Happily, disease and insects are not usually a problem. Some authorities consider it deer-resistant while others say it is

sometimes browsed by deer.

Attracts birds and butterflies

Spicebush swallowtail butterfly. Photo: Dr. Thomas Barnes, US Fish&Wildlife Service

If you are looking for plants that attract birds and butterflies, you may want to try spicebush. The fruits of spicebush attract many birds (vireos, tanagers, robins, thrushes) and its flowers attract native bees and pollinators. Va.Coop.Ext. Pub.HORT-59-NP.

Lindera is a host plant for the spicebush swallowtail butterfly. whose larvae feed on it and other members of the Lauracaea family, which includes another local native, sassafras tree (*Sassafras albidum*). You'll find lots of information about the spicebush swallowtail at Univ.Fla.Entemology/spicebushswallowtail.

Spicebush butterfly larva on a spicebush leaf. Photo: Ryan Hagerty, US.Fish & Wildlife Service

Sources for Spicebush plants and its cultivars

If you're ready to try planting spicebush, you CAN find it for sale in this area.

It's worth noting that there are a few **cultivars of *Lindera benzoin*:**

'Green Gold' – A non-fruiting form with very large, ornamental yellow blooms.

'Rubra' (also known as f. rubra) – a non-fruiting form with red-brown blooms.

'Xanthocarpa' (also known as f. xanthocarpa) – discovered at the Arnold Arboretum in Boston, this unique form has orange-yellow fruit.

The cultivars are not widely available, but the species is available in local native plant nurseries and online sources. **For a complete list of native plant nurseries in our region**, see the list maintained by the Virginia Native Plant Society, VaNativePlantSociety/NurseriesList.

Spicebush flowers — a lovely greenish-yellow. Photo: Wanda DeJule, Hummingbird Hill Natives Plants Nursery.

Spicebush foliage in fall color. Photo: Dogtooth 77.

How to Grow

Because it's so adaptable, you can plant spicebush in either alkaline or acid soil, or in full sun to shade, or in sites that are anywhere from occasionally wet to occasionally dry. The ideal situation, however, would be a site in partial shade with loamy, well-drained soil that is only occasionally wet or dry, and is in the pH range of 5.0 to 8.0.

According to some authorities, spicebush does not transplant easily, but a gardening friend of mine has had success with transplanting the wild ones on her property into moist areas. In any event, the container-grown plants from nurseries should establish readily. It can also be grown from seed, and quite easily.

How to use *Lindera benzoin* in the landscape

Spicebush is ideal for naturalistic plantings, shrub borders, woodland gardens, and for mass plantings along streams and ponds. Partial shade is best, but for maximum fall color and berries, and for the nicest shape, be sure your site gets some sun. Remember that if you want berries, be sure to have both male and female plants.

If you're creating a rain garden, *Lindera benzoin* would be an obvious choice if you want to include a shrub. Va.Coop.Ext/ Rain Garden Plants. It can also be helpful in erosion control and riparian buffer zones. www.dcr.virginia.gov/natural-heritage//riparian-nat-plants.pdf

Spicebush berries at Old Forest State Natural Area, Overton Park, Memphis, TN. Photo: Melissa McMasters

SOURCES:

VA.TECH/Dendrology.factsheet/Lindera benzoin

Va.NativePlantSociety/vnps.org/wildflowers-of-the-year/2006-spicebush-lindera-benzoin

vaplantatlas.org/

"For the Birds, Butterflies and Hummingbirds: Creating Inviting Habitats," Va.Coop.Ext. Pub.HORT-59-NP

NCStateExt./Lindera-benzoin

hort.uconn.edu/PlantDatabase/Lindera benzoin

www.missouribotanicalgarden.org/PlantFinder/Lindera benzoin

Va.Native Plant Society list of native plant nurseries, vnps.org/VirginiaNativePlantNurseries

The March To-Do List

By Cathy Caldwell | March 2019-Vol.5 No.3

March is the month when garden mania overtakes me, and probably you, too. The things that need doing seem endless, but the fun stuff we long to do — like sowing a new variety of zinnia — must wait. Most of the tasks on the March to-do list are necessary preparatory work for the fun that follows.

Weeding

Your beds may have **winter annuals —** broadleaf weeds like hairy bittercress and chickweed — which reproduce by seed that usually germinates in fall, grows during the winter, and then produces flowers and seed in the spring. **NOW — before those seeds drop** — is the time to root them out; otherwise, you'll be seeing lots more of these weeds next year. Right now I'm seeing hairy bittercress in some of my beds. This is the annoying little weed whose tiny white flowers form seed capsules that explode in your face when you've waited too long to pull them. In fact the seed from those exploding seed capsules can fly up to 10 feet away! For photos and helpful identification tips for these weeds, check out the Virginia Tech Weed ID site, VaTech/Weed ID/ hairy bittercress and VaTech/WeedID/chickweed.

Earth Day volunteer weeds a bed at Warfield Air National Guard Base, Baltimore, Md. Photo: Chris Schepers

Take Photographs

Once all your daffodils and spring bulbs are up, take some photos that show their locations in your beds. These photos could be helpful later in the season when you're planting in those areas and you're no longer sure exactly where those bulbs are. In addition, those photos may be a reminder of bulbs that need dividing in the fall.

Don't Forget the Deer Repellent

Deer tend to browse on broad-leaf evergreens as well as twigs and buds during the winter and early spring, so keep spraying your vulnerable plants with deer repellent. Keep monitoring for deer damage and change repellents regularly. Va.Coop.Ext./HORT-62NP. And once that lush spring growth appears, start spraying it immediately. Or perhaps you're using deer netting around your shrubs. If you have comments or questions about either method, please write them in the comments section below. We'd love to hear from you.

For additional tasks and tips for the month of March, please consult the following articles in our previous issues (topics given extensive coverage are listed in parentheses):

- Tasks&Tips/Ornamentals/March2015 (pruning roses and ornamental grasses)
- Tasks&Tips/Ornamentals/March 2016 (pruning shrubs, planting roses)
- Tasks&Tips/Ornamentals/March 2017 (pruning, indoor seeding, attracting hummingbirds)
- Tasks&Tips/Ornamentals/March2018 (preparing beds for spring)

If your lawn needs attention, you'll find a detailed discussion of March lawn tasks and tips in our March

2015 issue, March Lawn Care/TheGardenShed/March2015.

SOURCES:

PennStateExt/white-tailed-deer-in-home-fruit-plantings

Spring Lecture Series, Garden Basics Classes & Garden Tours

By Cathy Caldwell | March 2019-Vol.5 No.3

It's spring and the gardener's calendar fills up fast. Be sure to register now for the Spring Lecture Series. You can register online at the PMG website, https://pmgarchives.com/events/spring-lecture-series-1-gems-in-the-garden/

Spring Lecture Series #1 – Gems in the Garden

Thursday, March 14 @ 7:00 pm – 8:30 pm
5th St. Albemarle County Office Building, 1600 5th Street Ext
Charlottesville, VA 22902
$8.00
Gems in the Garden: Tree Characteristics that Add Grace to Your Landscape
Alex Niemiera, Professor in the School of Plant and Environmental Sciences at Virginia Tech and self-proclaimed tree lover, has been teaching woody landscape plant courses for over three…
Find out more »

Garden Basics: Growing a Better Lawn

Saturday, March 16 @ 2:00 pm – 4:00 pm
Trinity Episcopal Church, 1118 Preston Avenue
Charlottesville, 22903

Seed, fertilize, water and mow correctly to make your lawn green in every way.

Find out more »

Spring Lecture Series #2 – Native Plants for Harmonious Gardens

March 21 @ 7:00 pm – 8:30 pm
5th St. Albemarle County Office Building, 1600 5th Street Ext
Charlottesville, VA 22902
$8.00

Janet Davis, a trained horticulturist and owner of Hill House Farm & Nursery in Rappahannock, Virginia, will discuss how plants native to Central Virginia can…

Find out more »

Spring Lecture Series #3 – Keeping Your Vegetable Garden Pest and Pesticide Free

Thursday, March 28 @ 7:00 pm – 8:30 pm
5th St. Albemarle County Office Building, 1600 5th Street Ext
Charlottesville, VA 22902
$8.00
Adria Bordas has been the Extension Agent in Fairfax County since 2001 and has extensive experience in pest detection, diagnosis of plant and insect problems, water quality protection, nutrient management, and invasive pest control. Adria believes a productive and strategic…
Find out more »

April 2019

Spring Lecture Series #4 – The Mysteries of the Marvelous Monarch

Thursday, April 4 @ 7:00 pm – 8:30 pm
5th St. Albemarle County Office Building, 1600 5th Street Ext
Charlottesville,VA22902
$8.00

Steve and Karen McCurdy have raised and studied butterflies for 26 years and are Co-Presidents of the Butterfly Society of Virginia, an organization dedicated to the conservation of butterflies, moths, and their…

Find out more »

Saturday, April 13: THROUGH THE GARDEN GATE TOUR

9:00 am — noon

Through the Garden Gate, the 18th annual series of visits to local gardens in and around the Charlottesville area will begin on April 13, 2019 with a visit to Pam Sorenson's Garden at 928 Rugby Road in Charlottesville, hosted by the Piedmont Master Gardeners and the Dogwood Garden Club. The garden is the result of a 10-year collaboration between Pam Sorenson and landscape designer Cole Burrell. The one-acre property

features enormous magnolia and holly trees, a series of terraces defined by brick walls, a patio and fountain, a boxwood parterre garden, and a rock garden with three interconnecting pools. For more details, visit http://pmgarchives.com/events/ or call 434-872-4581. Admission is $5.00.

Saturday, May 4 → ANNUAL PLANT SALE

presented by Piedmont Master Gardeners & Charlottesville Area Tree Stewards

10:00 am — 2:00 pm

NEW LOCATION! Look for the tent at **The Shops at Stonefield**, 2100 Hydraulic Road.

Mark your calendar now — and be sure to note the new location!

The **Green Elephant** section of the sale has been growing in size and popularity over the last few years. Consider donating your clean, no-longer-needed garden items: decorative pots (no floral vases), garden books (no magazines), floral prints, tools in good shape and outdoor decorative garden items (including gnomes and flamingos!) are all appreciated. Contact **lilibetcoe@comcast.net** about where and when to drop off donated items.

The Truth About Compost Tea: Making it, Using it, and What to Expect from it

By Ralph Morini | March 2019-Vol.5 No.3

The internet is loaded with directions, advice, equipment and warnings about compost teas. This article explores how to make it, its benefits, potential downsides, and current best practices.

What is compost tea?

Historically, compost “teas” were made by suspending a bag of compost, or maybe manure, in a bucket of water, letting it soak for a few days until the water darkened, then using it as high-nutrient water for plants. I remember that my grandparents collected chicken manure in an open wine cask where it would be diluted with rain water, then stirred and used to water the tomatoes. Today, this isn’t a recommended practice. The awful smelling soup, now called leachate, not tea, is anaerobic, housing undesirable anaerobic bacteria and potentially pathogenic bacteria like E coli and Salmonella.

The product that is favored today is called Actively Aerated Compost Tea (AACT). The brewing technique is to use a container, chlorine-free water and some high quality, fully decomposed hot compost, preferably in a mesh bag, and an aeration system, like a multi-outlet aquarium pump with a couple of air stones to keep the water highly aerated. Some recipes suggest additives to encourage the growth of desirable bacteria and fungus. Processing time is about 2 days, and it is recommended that the tea be used immediately after processing is completed, before the thriving microbial community exhausts the available oxygen supply.

Is it worth the effort?

There are many enthusiastic supporters who believe it is. AACT goes a lot farther than compost. Five gallons is enough to dose a typical home plot. Well-made AACT can have 4 times as many microbes as regular compost. Because the nutrients are largely dissolved, they can be quickly absorbed by plants.

Furthermore, besides being used unfiltered as a soil drench, filtered AACT can be used as a foliar spray. Treated plants can then absorb nutrients through their vegetation and the "good" microbes can theoretically help limit diseases by some combination of attacking and outcompeting pathogens. It can also be used to stimulate microbial activity and decomposition in a compost heap.

Soil Drench *Photo: Gardening Solutions*

Questions and Limitations

There are detractors, however. They point out that the nutrient value of an AACT batch is some fraction of the nutrients in the small amount of compost used to generate the tea, which is spread across a much larger area. There is no argument about being able to generate very high microbe populations, but there is little control over the types of bacteria, batch to batch, and there is some risk of building pathogenic populations, depending on the organisms in the original compost. Beyond this, does it really make sense to build the microbe population if there isn't enough organic matter in the soil to feed them once they arrive? Finally, while there are many claims of added disease resistance and control, there are also legitimate studies that find little or no benefit from foliar spray applications.

Foliar Spray
Photo: Suzie's Farm

Best practices for successful application

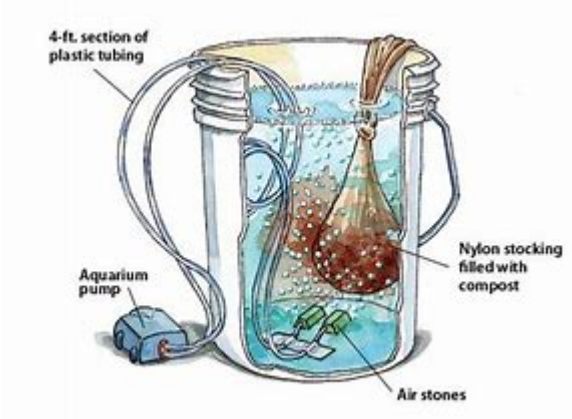
The cooperative extensions around the country offer positive but limited information about compost tea use. But there is plenty of "how to" information about AACT from organic growers and their supporting organizations. The best advice for successful application is:

- Use high quality compost, meaning fully-decomposed material that has been hot composted to

kill pathogens, especially if animal manure is a source material for the compost.

- Be sure to generously aerate the tea and use it immediately after it is ready to maintain the most diverse aerobic organism populations. Salmonella and E. coli are both anaerobic organisms that don't thrive in aerobic environments.
- Stay away from additives that may fuel an increase in harmful organisms. Good compost alone, when brewed properly, makes a very good tea.
- As a visual check, finished tea should have a sweet earthy smell, coffee brown color and bubbles on top.
- Don't spray the tea directly on edible plant parts.
- Thoroughly clean and disinfect brewing equipment immediately after each batch is made.

How to make AACT



Simple AACT Brewer
Photo: jardinclassicgardens.com

There are many retail kits offered for brewing AACT. However, here is a DIY approach that is practical for most home gardeners:

- Fill a clean 5-gallon bucket with 4 gallons of chlorine-free water; rainwater is ideal, well water is good. City water should be aerated in an open container for a few hours to eliminate chlorine.
- Aerate the water with an aquarium pump, preferably double outlet, connected with plastic tubing to 2 air stones set in the water.
- Add about 1 cup of compost per gallon of water to the bucket. It is a good idea to put the compost in a pillow case or stocking to reduce or eliminate the need to filter the tea later, especially if you plan to apply it with a sprayer. If adding loose compost, put it in the bucket before adding water. If the compost is contained, squeeze the bag a couple of times after adding it to the water to help water infiltration.
- Many recipes recommend adding a nutrient source to the water to further increase microbial activity. For our bucket system, add 2 tablespoons of natural sugarcane,

Compost tea bag
Photo: Bad Alley (Cat)

Filtering tea made from loose compost
Photo: pepperswill.com

unsulphured molasses, maple syrup or fruit juice to encourage bacterial growth. For a fungally-dominated tea, add a similar amount of kelp, fulvic or humic acid or rock phosphate. Countering this widespread practice, however, is the National Organic Standards Board requirement that organic growers have their teas tested for pathogens if nutrients are added to the compost/water suspension. Additives of most concern are sugars used to stimulate bacterial population growth.

- Bacterially-dominated teas accelerate nitrogen fixation in the soil and can assist in insect resistance and suppression of some diseases. They are best for vegetables and annuals. Fungally-dominated teas also accelerate decomposition in the soil, especially of tougher, woodier materials and have been shown to aid the fight against powdery and downy mildew. They are favored for perrenials, shrubs and trees.
- Brew for 24-36 hours, looking for the aforementioned sweet, earthy smell and bubble-covered surface. Keep it out of the sunlight to avoid UV damage to the microbial population. Keep it as close to room temperature as possible for best results.
- Apply the tea within 4 hours of completing the process — before the thriving microbial population exhausts the oxygen in the mixture. It can be applied unfiltered directly as a soil drench at the rate of 5 gallons per acre, or, if filtered, as a foliar spray at 10 gallons per acre. It can be diluted up to 4 or 5 times the original volume while maintaining the benefits.
- If you have used chemicals on your lawn, AACT is a good way to regenerate soil organisms. It will take multiple applications to rebuild the in-soil microbial population.
- There is no limitation to application
- Best to apply it early in the morning or in the evening as UV rays kill microbes
- Disassemble the brewing kit and clean it to remove the brewing film with a 5% baking soda or 3% hydrogen peroxide solution.

A final assessment

While Actively Aerated Compost Teas aren't necessarily a panacea for all garden ailments, they can be an effective means to strengthen the soil microbe population and assist in disease and insect resistance. Where there is already adequate soil organic matter, they can boost decomposition activity and nutrient availability for plants. They are a quick means of rebuilding microbial populations that have been harmed by use of chemical fertilizers and pesticides. They are certainly easier to apply than solid compost and are a good way to stretch a limited compost supply. While nutrient content is modest, their dissolved state makes nutrients immediately plant-available. Some users even think the brewing process is fun.

Photo: gardenbetty.com

But, concerns about pathogens and variable effectiveness of foliar application are to be taken seriously. At the same time, while the literature is filled with pathogen warnings and questions about batch-to-batch effectiveness as a foliar disease preventive, there are also many effusive stories about and photos of lush gardens attributed to use of AACT. And, while there are plenty of warnings, I haven't found instances of actual harm linked to it. It has been around a long time. I know my grandparents were believers. That said, following the NOSB guidelines makes good sense.

At the least, if you are working toward following more natural and organic soil building and gardening practices, AACTs are another potential tool in your tool chest and for many of us, deserving of a fair trial.

Sources:

"Compost Tea to Suppress Plant Disease," University of Vermont Extension, http://www.uvm.edu/vtvegandberry/factsheets/composttea.html

"National Organic Standards Board Recommendation for Guidance: Use of Compost, Vermicompost, Processed Manure and Compost Tea," https://www.ams.usda.gov/sites/default/files/media/NOP%20Final%20Rec%20Guidance%20use%20of%20Compost.pdf

https://georgiaorganics.org/wp-content/themes/GeorgiaOrganics/Downloads/pdf/CompostTeas.pdf

http://www.soiltest.uconn.edu/factsheets/CompostTea.pdf

http://www.cag.uconn.edu/plsc/soiltest/documents/foodsafetycompostfactsheet6-14.pdf

http://www.mofga.org/Publications/The-Maine-Organic-Farmer-Gardener/Spring-2004/Compost-Tea

Compost Tea literature review

https://web.extension.illinois.edu/lms/downloads/57644.pdf

https://chatham.ces.ncsu.edu/wp-content/uploads/2016/10/CompostingSAS2016comp2.pdf?fwd=no

Managing the Tick Problem

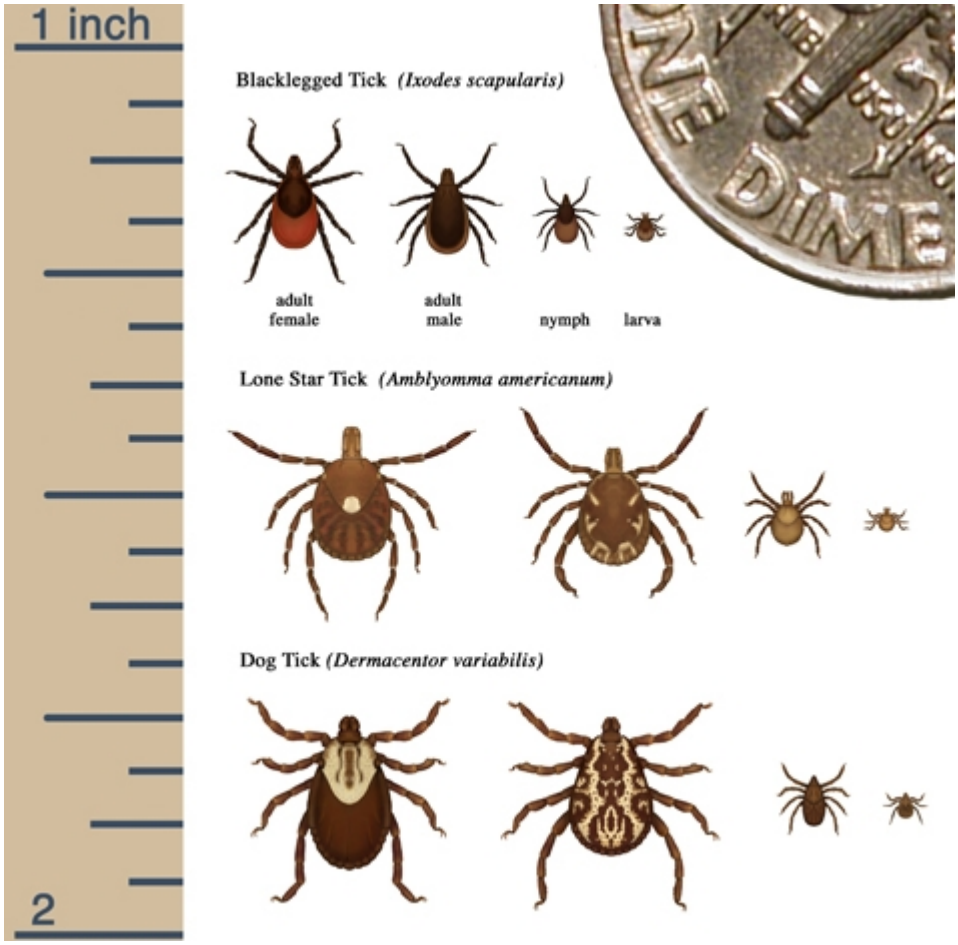
By Ralph Morini | March 2019-Vol.5 No.3

Ticks have fast become the pest of greatest personal health concern to gardeners and outdoor people of all stripes. With good reason. They are everywhere, hard to detect and can carry debilitating, even deadly diseases. While there is no silver bullet, there are things we can do to reduce our risks, including knowing the enemy and its habits, understanding how to react when bitten and how to minimize the tick population in our yards and gardens. This article will try to briefly summarize our latest information.

The Tick Life Cycle

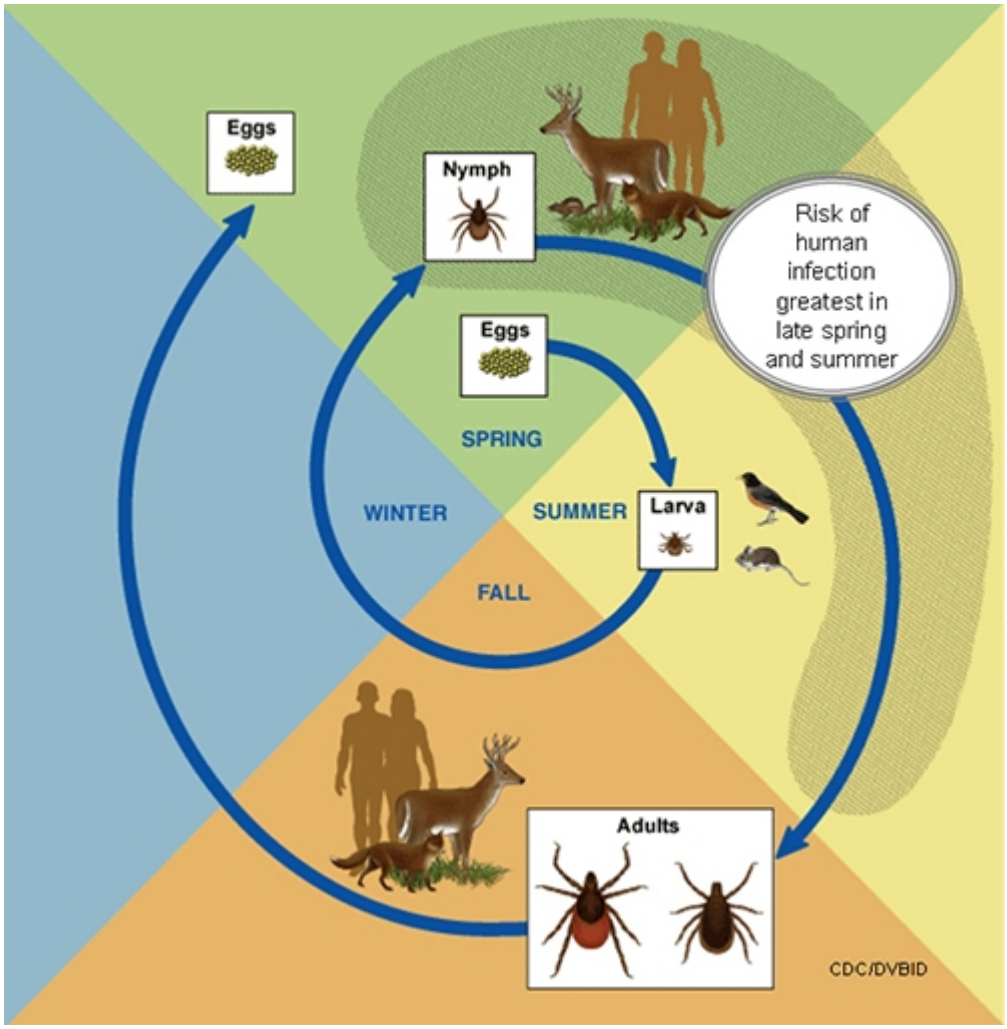
The three tick types of most concern to Virginians are the blacklegged or deer tick, the lone star tick and the common dog tick. Ticks are arthropods and all share 4 life stages:

- Egg
- Larva (six legs)
- Nymph (8 legs)
- Adult (8 legs).



Tick life stages: Photo: cdc.gov

Eggs typically hatch in the early spring. The tick then progresses through its life stages: finding a host, having a blood meal and dropping off the host to molt to the next stage until the adult female drops off her host to lay eggs. The greatest bite danger for humans is late spring through summer. Ticks may live for two to three years until they acquire their blood meals and progress through their adult/egg laying stage.



Blacklegged tick life cycle: www.cdc.gov

The three ticks we are concerned about carry different diseases, but the ticks (and diseases, too) share many common characteristics. They thrive in wooded, grassy areas and prefer damp environments. Ticks become progressively less active at temperatures below 45 degrees F. Activity also slows during hot dry periods. Note however that while activity increases or slows down during different seasons and in different environments, it never goes to zero. It is always smart to take precautions when in tick territory.

Ticks aren't born infected with disease. They pick diseases up from infected hosts and carry them through subsequent stages in their development. Nymphs are probably the most dangerous transmitters to humans because they are very small and often go undetected. Adult ticks can also transmit disease but are much larger and more likely to be removed quickly. CDC data says that for blacklegged ticks, 10-36% of nymphs and about 60% of adults are infected with lyme.

Disease summaries

Lyme Disease:

- The most common tick-borne disease in our area, carried by the **blacklegged tick**
- Symptoms include fever, chills, headache, muscle pain, gastro symptoms, rash
- Symptoms typically appear 3-30 days after a bite
    - Diagnosis is usually symptom-based, including rash and tick exposure
    - Treatment is with antibiotics, generally doxycycline.

Lyme bullseye rash: cdc.gov

Ehrlichiosis:

- Transmitted by **blacklegged** and **lone star** ticks
- Symptoms include fever, chills, headache, muscle pain, gastro symptoms, rash
- Symptoms typically appear in 5-14 days
- Diagnosis is based on symptoms and blood tests.
- Treatment is with antibiotics, generally doxycycline.

Anaplasmosis:

- Transmitted by **blacklegged**, **lone star** and **American dog ticks**
- Symptoms include fever, chills, headache, gastro symptoms, 10% of victims get a rash
- Early symptoms can be mild, appearing in 1-5 days
- Diagnosis is based on symptoms and blood tests
- Treatment is with antibiotics, generally doxycycline.

Tularemia:

- A relatively rare disease transmitted by **blacklegged, lone star** and **American dog ticks** as well as deer flies and contact with dead infected animals
- Can be contracted by bite, contact with infected animal, or bacterial entry via eyes, lungs or digestive system (eating/drinking).
- Similar symptoms to the above diseases. One embodiment includes a skin ulcer. Lymph node swelling is also common.
- Diagnosis based on symptoms, exposures, blood tests and cultures
- Treatment is with various antibiotics.

Tularemia ulcer: cdc.gov

STARI: (Southern tick-associated rash illness)

- Transmitted by **lone star tick** bite
- Symptoms very similar to Lyme Disease including expanding bullseye rash
- Diagnosis based on symptoms and knowledge of tick bite.
- Treatment is with doxycycline, but there are still questions about need and effectiveness of this practice.

Various STARI rashes
cdc.gov

Rocky Mountain Spotted Fever

Rocky Mountain Spotted Fever — one of the most dangerous tick-borne illnesses — is one of several related diseases. The CDC now reports Rocky Mountain Spotted Fever under a broad category called Spotted Fever Rickettsiosis (SFR), which includes Rocky Mountain Spotted Fever, *Rickettsia parkeri rickettsiosis*, Pacific Coast tick fever, and rickettsialpox.

Rash from RMSF
cdc.gov

- Transmitted by the **American dog tick**
- Virginia is classified by the CDC in the high incidence group of states, although five states — North Carolina, Oklahoma, Arkansas, Tennessee, and Missouri — account for over 60% of SFR cases. In the eastern US, it is most common in NC and TN.
- Symptoms include fever, headache, nausea, vomiting, etc. Rash is common 2-4 days after bite. It can be deadly unless treated promptly.
- Diagnosis is based on symptoms, tick exposure or bite knowledge and blood tests
- Doxycycline is the recommended antibiotic treatment.

This CDC website offers the latest information on ticks and tick-borne diseases as well as bite-avoidance and disease prevention techniques.

Red Meat Allergy:

The tick bite that causes a red meat allergy has been in the news, but is not yet on the CDC website. It is caused by a carbohydrate called alpha-gal, not normally present in humans, being injected into the human bloodstream. This causes an immune or allergic reaction to occur when alpha-gal is ingested by eating red meat products including beef, pork, lamb, venison, rabbit and some dairy products. The best hypothesis is that alpha-gal is delivered to the bloodstream by the lone star tick,and that it takes multiple bites to build the alpha-gal level enough to cause the allergic reaction when the victim eats a red meat product. Intensity of response varies, and it dissipates in some but not all sufferers. Treatment is to avoid red meat and to treat symptoms with antihistamines, or in extreme cases with epinephrine, as they occur. Severe cases carry epi-pens just in case.

Preventive Measures

Ticks prefer moist places with cover, like forest leaf litter, shaded forest edges, and tall grasses. Minimize

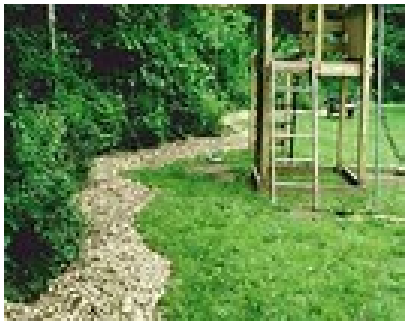
risks when in these environments:

- Wear long pants, long sleeves and hat. Tuck pants into socks. Light colors make it easier to spot ticks on clothes.
- Spray exposed skin with a minimum 20%, preferably 30-40% DEET product or other EPA approved insect repellent, following directions, especially regarding application to babies and children.
- Treat clothes with permethrin or wear purchased permethrin treated garments, following application directions.
- Stay in the center of trails, avoid the litter at forest edge
- After outdoor events, wash and dry clothes. Ticks can survive a hot water wash but an hour in the dryer at high temp kills them.
- Do a careful tick check after being in a tick-friendly area. Be especially thorough in checking moist and hairy areas like head, shoulders, armpits and inner thighs. Do the check promptly. Data shows a significant reduction in disease transmission if ticks are removed within 24 hours of biting. In any case, earlier removal is better.
- Remove embedded ticks properly, with a tweezers, gripped as close as possible to the head to avoid squeezing any contents in the tick into your body.
- Kill the tick in rubbing alcohol and save it for a few months in case any symptoms develop. The type of tick affects disease possibilities and since early symptoms are similar across different afflictions, knowing the specific tick type helps in diagnosis.
- Work with your vet to treat pets with tick-repelling medications, and check pets and possible animal hosts frequently. There are effective pet based repellents available
- There is some data that shows a benefit from taking a single prophylactic dose of doxycycline to reduce chances of contracting lyme disease when black legged ticks are removed 36 or more hours after the bite and the medication is taken within 72 hours of removal. It may make sense to talk with your doctor about outfitting yourself with this medication in advance if you have a significant risk of being bitten.
- While most infections depend on symptoms to arise before testing is done or medications prescribed, if a significant rash develops, see your doctor immediately. This doesn't include the small itchy red spot that often surrounds the bite. But a bullseye, multiple spotted rash or hives are meaningful and demand medical evaluation.

Reducing risks in yard and garden

Ticks like dark, moist places and dislike hot, dry environments. So to minimize attractive tick nesting on properties:

- Keep grass trimmed and clean leaf litter from under shrubs and trees
- Remove trash and clutter that can provide cover for carrier rodents and ticks
- Securely cover compost and trash bins to discourage wildlife entry into your yard
- Stack wood neatly and keep it dry to prevent rodent nesting



Lawn edge tick barrier
Photo: pinterest.com

- If the yard is fenced, keep the inside of the fence cleared and clean. If not fenced, a 3 foot wide wood **chip or gravel transition zone between lawn and woods** has been shown to provide a barrier to tick entry. See photo above.
- Ticks don't travel far on their own. They are transported by their hosts. For larva this usually means small rodents, like the white footed mouse. Nymphs may attach to small-to-medium size mammals. Minimizing nesting sites and hiding places for the hosts helps keep ticks out. The risk with adults that attach to deer is that they drop off after their meal to nest and lay eggs for next season.

Chemical Options for Outdoor Areas

There are a variety of synthetic and botanical acaracides (substances used to control ticks and mites) available for home spraying.

- **Synthetic acaracides** are usually second generation pyrethroids, derivatives of insect toxins found in the chrysanthemum. They include bifenthrin, cyfluthrin and other "…thrin" compounds. They are less harmful to humans than earlier chemicals, but are still toxic to aquatic life and should not be applied near ponds, streams or wetlands. They are toxic to bees, so avoid spraying open flowers and don't spray on windy days when drift is likely. Bifenthrin is considered effective against ticks and a spray application lasts for 1-3 months.
- **Botanicals**, generally essential oil combinations, may include rosemary, geraniol, peppermint oil and others. Because they are classed as food grade, they don't require EPA registration, but follow handling and application directions carefully. Tests have shown some oils to be nearly as effective as bifenthrin. Others may repel but not kill ticks, so it makes sense to investigate formulation and effects prior to use.
- A non-spray treatment is to create a **barrier with granular deltamethrin**. Studies using this acaricide, distributed with a hand spreader, showed excellent results in reducing black legged ticks in a barrier band around properties. And in addition, the arthropod population damaged initially by the application, recovered in a few weeks.
- Another device that has achieved tick control success in testing is the **bait box**. These are tamper-proof boxes that use a bait to draw mice inside where the mouse rubs against acaracide-soaked wicks, killing ticks while sparing the mouse. The acaracide used is fipronil, the active ingredient in many vet-prescribed tick repellents for pets. Boxes are placed 30-50 feet apart and replaced in spring and fall. They have demonstrated major reductions in both tick populations

and percent of ticks infected over a two year period. They are commercially available.

- **4 Posters** are deer feeding boxes that lure deer to a central corn stash inside the box. When the deer reach into the corn bin, their ears, heads and necks rub against rollers soaked in an acaracide. The acaricide is spread further during grooming. 4 Posters must be tended weekly by licensed operators. They are also expensive when considering the structure, the chemical and the corn costs. There is a recommended density for a defined coverage area and they are considered more appropriate for communities than individual properties. A two year study completed in Fairfax County in 2016 generated inconclusive results, although other trials have claimed encouraging success.

4 Poster Deer Feeding Box. Photo courtesy of Fairfax County

What about a Lyme vaccine?

Because Lyme disease claims the most sufferers, people often ask why there is no anti-lyme vaccine. In fact there was a vaccine developed in the 1990s and marketed by SmithKline Beecham, now Glaxo SmithKline. It was expensive, relatively short lived and was discontinued in 2002 due to a lack of demand. There are multiple efforts underway today to develop a new vaccine, including one, Valneva, developed by a European pharma company that started EPA fast track clinical trials in 2018. Something is likely coming, but there is nothing available yet.

Do ticks bring anything positive to the world?

You have to be a true believer to see benefits from the existence of ticks. They've been here doing what they do, and surviving, since the dinosaurs lived. If you believe in diversity and see predator-prey relationships as natural and healthy, it's possible to rationalize a constructive role for them. And they do provide food for possums and guinea hens as well as other land and aquatic animals. But, most of us could live without them.

Nevertheless, they are here and we have to contend with them. By managing our property, our outdoor habits and our hygiene, it's possible to coexist while maintaining our preferred lifestyles. I hope that this

article is helpful in constructing your battle plan.

Sources:

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March Tasks in the Vegetable Garden

By Ralph Morini | March 2019-Vol.5 No.3

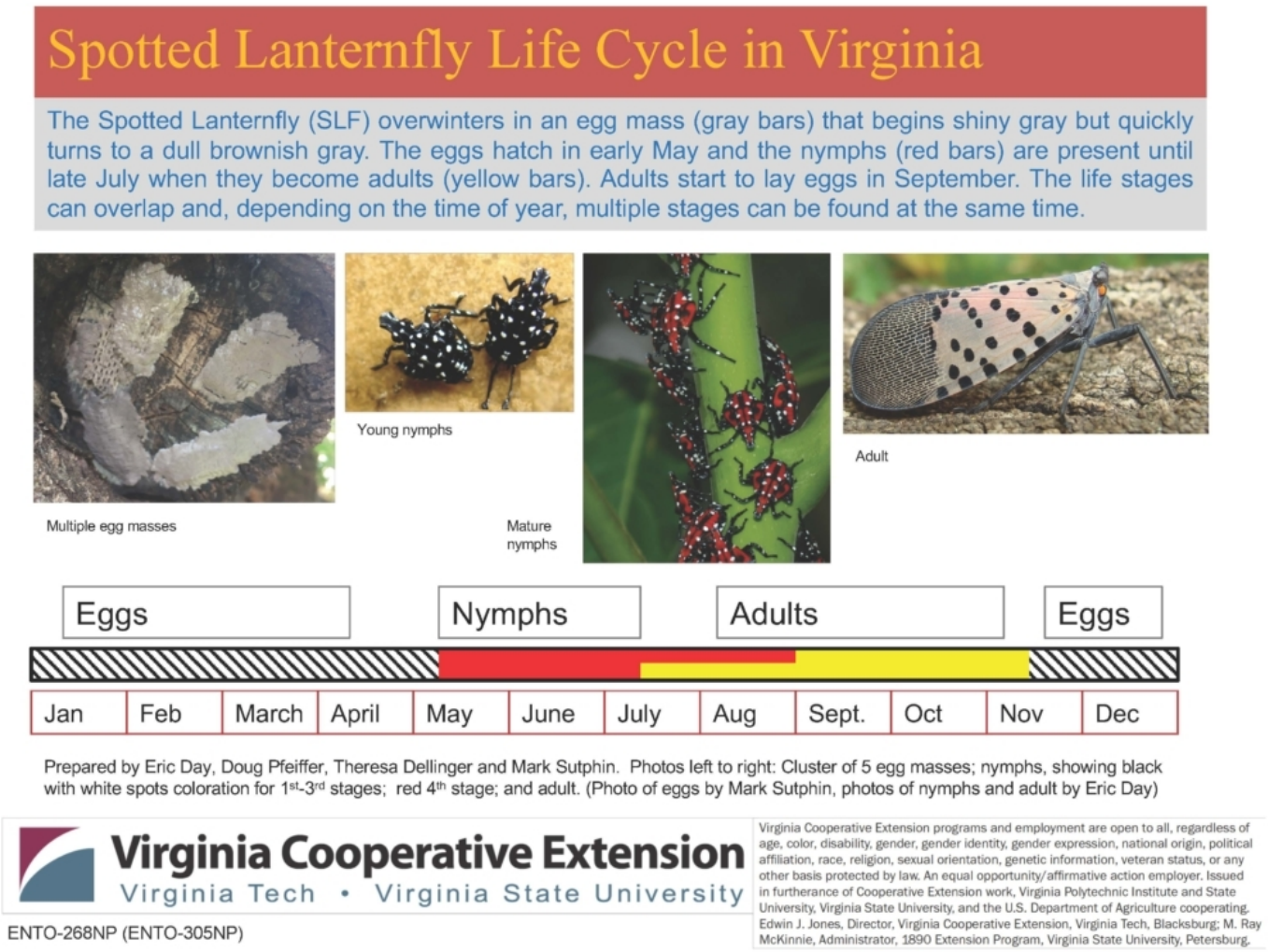
March in Virginia, the time when vegetable gardeners spring into action. We're firing up our grow lights indoors and preparing to do some transplanting and seeding in the garden later in the month. We're alternately teased by warm, sunny days and frustrated by raw, rainy ones. But hopeful, always hopeful, that the good weather is approaching.

This year a particular concern is the wet ground. 2018 was a record rainfall year and a worse than usual year for mold and disease issues. Unfortunately, wet weather continues and the ground really hasn't been able to dry out. At planting time, wet ground makes effective tilling impossible, increases risk of compaction and damage to soil structure and can cause leaching of key soil nutrients including N, P and K.

Best short term strategy is to exercise patience, monitor soil moisture, and wait until conditions are right to plant. **The old test for till-ability is still useful: take a fistful of soil and squeeze it.** If it forms a wet sticky ball, it is too wet. Wait until the soil remains crumbly and workable under pressure before prepping the soil.

For longer term help, the universal soil-fixer, adding organic matter, especially fully decomposed compost, will get you to workable conditions sooner. Humus — organic material that has decomposed to the point that its source is no longer recognizable — has better structural qualities than mineral matter and its high cation exchange capacity reduces nutrient loss via leaching. In addition, regularly feeding soil microbes with organic matter will help to fight off soil-borne diseases. To add compost this spring, wait until the soil is ready, then work up to 2 inches into the top 4 to 6 inches of soil. Follow this up with another application in the fall and you will likely be able to get an earlier start next year.

Another concern is the Spotted Lanternfly. If you haven't heard about it, it is a highly destructive pest that likely arrived here from China a few years ago. First discovered in Pennsylvania, it has been found in Frederick County, VA and is moving south. The chart below from the Cooperative Extension shows its life cycle. An excellent and very thorough article on this pest can be found in the June 2018 Garden Shed. If you see evidence that you suspect is Spotted Lanternfly-related, please report it to the local Cooperative Extension Office.



Enough with the warnings! Let's get down to some actual gardening. The following list of cool weather crops was compiled from the VCE publication "Vegetable Planting Guide and Recommended Planting Dates" and indicates which vegetables may be safely planted in our area **after the middle of March:**

Asparagus (crowns)

Collards

Leeks

Mustard

Kale

Onion (sets)

Peas

Spinach

Radish

Turnips

Potatoes

For folks who want to start tomato and pepper seeds indoors, the rule of thumb is to start them indoors about **6-8 weeks before the final frost**, which in our area is around May 15th (VCE Publication 426-331). That means we should start tomatoes near the end of March. Peppers need an additional 2-3 weeks head start and can be started now.

Photo: soiltest.vt.edu/sampling-instructions

It's not too late for a soil test! If you haven't had a test for a while, or if you've had growing problems recently, or if you are significantly modifying your soil, a test makes sense. They are a valuable tool for identifying and preventing problems as well as keeping your soil at optimum fertility and pH levels and are recommended every three years. A soil sampling kit complete with instructions is available at our local Virginia Cooperative Extension Office on 5th Street Extended. Cost for a basic analysis of nutrient availability, pH and amendment recommendations is only $10. For additional information on soil testing, check out VCE PUBLICATION 452-129.

Lettuce is very sensitive to low (acidic) pH levels, so lime should be applied to your lettuce bed if the pH is below 6.0. A soil test can determine the pH level and the need for lime!

Don't throw away that leaky old garden hose! You can use it to protect yourself and the blades of your pruning saw and other cutting implements during storage. For example, cut a section of the gardening hose to the same length as the saw blade. Cut the hose lengthwise on one side and place it over the saw blade.

If your garden soil crusts after a rain, this may result in poor germination, because young seedlings are too fragile to break though the crust. This problem may be caused by over-tilling the soil. Cover the seeds with ¼ inch of compost or fine mulch matter, which will keep the soil moist and help prevent crusting.

If you are planning a backyard orchard, start by mapping out the site, giving particular attention to air and water drainage. Remember, just like water, cold air flows downhill. Avoid frost pockets — low areas where cold air gathers and the risk of a late freeze can damage buds and fruit production.

We've already talked about the ball-and-squeeze test, but soil temperature is another indicator that the time is right for planting. As a general rule, cool season crops — collards, leeks, peas, radish, and spinach — can be planted when the soil reaches a temperature of 45-50ºF, while warm season crops — cucumbers, squash, corn, beans and melons — require a soil temperature above 65º F.

March is a good time to begin a compost pile if you have not done so already. Most garden centers or nurseries sell composting bins. For help in planning your compost pile see our 2016 February feature article

on compost in The Garden Shed, or view the VCE Publication 442-005, "Composting Your Organic Kitchen Waste with Worms."

Not sure what vegetables or specific varieties of vegetables to plant? Check out VCE Publication No. 246-480 "Vegetables Recommended for Virginia," which provides a comprehensive listing of recommended varieties.

Spring fertilization of fruit trees should occur about 3-4 weeks before active growth begins. Scatter fertilizer evenly under the tree, starting about 2 feet from the trunk and extending just beyond the drip line or end of the furthest branches. A soil test should be performed prior to applying fertilizer. For additional information on fruit trees, visit VCE Publication 426-841, "Tree Fruit in the Garden."

The optimum time to prune fruit trees is just before they bloom. Pruning allows the tree to direct nutrients to branches that will bear high quality fruit. The object is to remove dead, diseased or damaged wood. Also, remove shoots that are growing straight up or straight down as neither provides for good fruit development. Growth crisscrossing the center of tree should be removed as well. A more open tree allows greater light penetration and air circulation, thereby increasing fruit quality and reduced disease and insect pressure. For additional pruning information, visit VCE Publication 422-025, "Physiology of Pruning Fruit Trees."

Bramble fruits such as raspberries and blackberries may be planted in mid- to late March. Plant in moist, well-drained soil containing large amounts of humus or organic matter. For weed control, mulch around newly-planted brambles with a hardwood or softwood mulch. For additional information on how to grow bramble fruit, visit VCE Publication 426-840, "Small Fruit in the Home Garden."

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

Resources:

"Spotted Lanternfly," Virginia Cooperative Extension Publication ENT-180, http://pubs.ext.vt.edu/content/dam/pubs_ext_vt_edu/ENTO/ENTO-180/ENTO-264.pdf

"Vegetable Planting Guide and Recommended Planting Dates," Va. Coop. Ext. Publication 426-331, http://pubs.ext.vt.edu/426/426-331/426-331.html

"Is it time to plant vegetables? Ask your soil thermometer," Oregon State University Extension, http://extension.oregonstate.edu/gardening/it-time-plant-vegetables-ask-your-soil-thermometer