May is the National Wildlife Federation’s “Garden for Wildlife Month.” Our gardens play an important role in helping wildlife. Habitat destruction is the leading cause of wildlife population decline. It is the perfect time to add more native plants and wildflowers to our gardens for garden–friendly wildlife habitat! No matter how small or large your property, from a condo balcony to acres of land, you can create welcoming habitat for wildlife to share your space. The rewards will be immediate and like the saying goes “if you build it, they will come.”

Some easy tips: Install a small birdbath, wildlife pond, or bee or butterfly puddler. Build a bug hotel. Go beyond planting nectar flowers for insects, to providing specific host plants on which caterpillars prefer to feed. Incorporate a native berry shrub that will attract insects and in turn attract birds. You can see a spectacular exhibit of a bug hotel at Eden Mill’s vegetable garden!

Beyond planting for wildlife, plant something just for yourself. Take time to enjoy its beauty. Life passes too quickly! We all know this vividly with the passing of MG’s Grace Wyatt and Linda Masland. These losses have left us broken hearted. Our memories and photos remind us of our truly wonderful Master Gardener friends!

Ronnie Grevey ‘16
**Grow Box Gardening**

The Daytime Study Group March presentation was a demonstration by 4-Her Seth Donnelley. He was inspired to develop a Grow Box after listening to a TED Talk by Caleb Harper entitled "This Computer Will Grow Your Food in the Future". The food issue topic: Grocery store fruits and vegetables are not as fresh as we think! Holding up a perfect grocery store apple as an example of what we buy in our local supermarket, Harper asked "How old do you think this apple is?". Surprisingly the average, grocery store, apple is 11 months old! He posed several "What if..." fresh food questions that sparked Seth to do some experimentation of his own and grow indoor herbs and vegetables.

Seth’s indoor Grow Box garden was to be made from readily available materials such as PVC pipe and fittings for the frame and covered with heavy-duty plastic sheathing that was black outside and reflective white inside. Red and blue LED light strips were hung inside the 19 cubic foot indoor grow box. Normally you or I think horizontally, start seeds in a flat, and grow them on a table. Seth’s unique grow box would grow seedlings vertically. He designed long, narrow grow tube bags that hung from the grow box ceiling!

Typically, we do not consider engineering and gardening together. Seth’s project involved a great deal of trial and error designs: light reflectivity of black vs. white colored plastic sheeting; plastic heat retention; s-hook weight requirements of a wet grow bag; sealing the medium inside the grow bags. Seth tried many possible solutions during the design and build process with ideas considered, tested and tweaked.

Seth’s curiosity about the LED red and blue emitting diodes lead him to a 2014 research study which tested the effects of LED red vs blue light on plant photosynthesis. The research group measured plant growth and development under varying conditions of light intensity, light quality, duration and photoperiod (the period each day during which an organism receives illumination). Seth used their lighting research to pattern his grow box LED lights to a ratio of 5:1 red to blue for his leafy greens and herbs.

At planting time, a fine, lightweight growing medium was tested. Using trial and error, he found that a 2:1:1 ratio of orchid potting mix (or similar chunky medium), perlite and hydrated coconut coir provided a good lightweight medium. The 1 1/2 foot long, narrow, plastic grow tubes were hung throughout the box. Grow holes were punched in the plastic for the seeds and seedlings. When everything was completed and tested, the grow box successfully grew healthy, fresh greens and herbs.

Only 2% of the American population is involved in farming, while consumer demand for fresh, locally grown fruits and vegetables is increasing continuously. We must think of ways to innovate. The whole premise of Caleb Harper’s Ted Talk was to build a platform that inspires youth to get involved in farming. After hearing Seth's presentation at our Study Group, I say one young man came away inspired ....And he inspired a few Master Gardeners!

**Seth Donnelley’s Resources:**
- TED Talk - “Caleb Harper: This Computer Will Grow Your Food In The Future” (URL: https://www.youtube.com/watch?v=LEx6K4P4GJc)
- Square Roots farm (URL: https://squarerootsgrow.com/)
- M. Schwab, T. Naznin. Determination of the Effect of Red and Blue Ratios of LED Light on Plant Photosynthesis (URL: https://www.researchgate.net/publication/267353443_Determination_of_the_Effect_of_Red_and_Blue_Ratios_of_LED_Light_on_Plant_Photosynthesis) Proceedings of the 2014 ASHS Annual Conference. (via Research Gate) (In this study, it was found that a 4:1 or 5:1 ratio of red:blue light is best for plant growth.)

*Nancy Gladden ‘16*
There are two wonderful things about Master Gardeners Sign Up Genius.

1. **You don’t have to be a techy genius to use the system.** (I’ll get to the second one later).

Sign Up Genius is the new software program that keeps track of who is doing what or bringing what to which general monthly meeting. Making coffee, bringing refreshments or cleaning up, the choices are yours with a point and click system. During the third week of each month, Diane Payne will send out a **Sign Up Genius link**. Just open her e-mail and **click on the link to Sign Up Genius**.

A screen pops up and on the left hand side has all general meetings listed by date and time. **Scroll down** until you come to the meeting for which you want to volunteer. You’ll see all the opportunities listed. Find the one you want and then **click on the sign up square next to your choice**. Then **click on the “submit and sign up” button** at the bottom of the screen. Another screen pops up asking for your name and email address. **Fill out** the information slots and then **click on the “Sign Up Now” button** located at the bottom of the screen. You will automatically get a confirmation e-mail. You will also get a reminder in your email closer to the meeting date letting you know what you have volunteered to do.
Oops, but what happens if you want to make coffee for the May 2 meeting and there is no place to sign up? All you see is a name where the sign-up square should be. That means someone else got there first and all available slots for that particular chore are filled. However, do not despair. As you scroll down through the years’ worth of meetings, there are still lots of volunteers needed. Now, you are probably wondering about the other wonderful thing about Sign Up Genius I promised to tell you.

2. If your chore involves working off-site for the meeting (i.e., your kitchen) preparing for the meeting, you get volunteer credit for your time.

And you don’t need to be a genius to know that’s a good deal.

Meg Algren, '10

Food for thought: Pay the farmer now, or pay the pharmacist later

Study Sheds Light on Major Rose Disease

Source: https://www.morningagclips.com/study-sheds-light-on-major-disease-in-roses/

Mite is causing extensive damages to the nation’s $250-million-a-year rose industry

BELTSVILLE, Md. — Agricultural Research Service (ARS) scientists in Beltsville, Maryland and their colleagues have discovered why a mite is causing extensive damages to the nation’s $250-million-a-year rose industry and why it’s so hard to detect and control. It seems the mite hides deep in the flower’s internal organs.

The rose bud mite (Phyllocopetes fructiphilus) is about half the size of a grain of salt, but it spreads rose rosette virus (RRV), which is responsible for an incurable rose disease found in 30 states. (Jay Knight, Flickr/Creative Commons)
The rose bud mite (Phyllocopetes fructophilus) is about half the size of a grain of salt, but it spreads rose rosette virus (RRV), which is responsible for an incurable rose disease found in 30 states.

A study by researchers at the ARS Electron and Confocal Microscopy Unit and their colleagues produced stunning, high-resolution images that, for the first time, identified the mite’s “hiding spots” deep within rose flowers and leaf buds. The images showed the mite at the base of the rose’s glandular hairs on the sepals, which are tiny leaf-like appendages in the base of the flower. By imbedding itself so deeply among the inner floral parts, the rose bud mite can avoid sprays or other treatments applied as controls.

The images also showed two other mites on roses, including one (Eriophyes eremus) that was found in the folded stipules at the base of the leaf stalk. The other mite (Callyntrotus schlechtendali) was discovered on the open surface of the leaves. It was the first time these two mites were found on roses in the Americas.

The findings should prove useful to rose producers, breeders, growers, scientists and others trying to find ways to control rose mites. Several predatory mites, for instance, were also found on roses sampled and could potentially be used as biological controls. Roses from 10 states and the District of Columbia were sampled in the study.

The study’s lead author is Gabriel Otero-Colina, from the Colegio de Postgraduados in Texcoco, Mexico. He was a visiting scientist at the ARS microscopy unit. Gary Bauchan, who is director of the unit, is the study’s corresponding author. Co-authors include researchers from West Virginia University, and ARS researchers from the National Arboretum’s Floral and Nursery Plants Research Unit also located in Beltsville.

Results were published in the Journal of Environmental Horticulture.

The Agricultural Research Service is the U.S. Department of Agriculture’s chief scientific in-house research agency. Daily, ARS focuses on solutions to agricultural problems affecting America. Each dollar invested in agricultural research results in $20 of economic impact.

–Dennis O’Brien
USDA ARS

Dare 2B Tick Aware

Notes from GardenWise 2019 session “Dare 2B Tick Aware” by Tom Smith. An outgrowth of 2014’s passage of PA Act 83, the Lyme and related tick-borne disease surveillance, education, prevention, and treatment act which among other things funds tick related training materials and seminars.

Objective: Preventing tick bites and tick-borne diseases.

D – Defend yourself and property
A – Avoid tick habitat
R – Remember tick checks and shower
E – Eliminate ticks correctly
Lyme disease was first discovered in early 1970’s in Lyme, Massachusetts. Pennsylvania now has the nation’s highest confirmed Lyme disease cases. Tick-borne diseases are present in every U.S. state except Hawaii. Over 300,000 confirmed cases in U.S. (Tom Smith conveyed many people’s belief that actual cases are probably more likely 10 to 12 times higher partly due to detection difficulties.)

Ticks acquire Lyme and other tick-borne diseases from infected animals and pass them to humans and animals. Many deer and mice are Lyme disease carriers. When an infected tick bites it’s host the pathogen is carried in the tick’s blood and transmitted into victims, including other animals and humans. Not all ticks carry pathogenic organisms, like Lymes. Unfortunately, you can’t tell which ticks are carriers just by looking at them; testing is required.

Ticks can sense humans and large animals from up to **50 feet** away through ground vibrations and smell. Ticks do not jump, fly, or drop from trees. They attach directly to their host through physical contact. Ticks are active year round; frost or snow does not kill them. They stay in leaf litter and when temperatures warm, they crawl out looking for a meal.

**Primary tick prevention measures:**

1) Spray skin with products containing **DEET** according to label directions. Put sunscreen on first, then repellent. *Never use DEET under clothing or on pets.* For more info refer to: [www.epa.gov/insect-repellents](http://www.epa.gov/insect-repellents) and [www.palyme.org/dare-2B-tick-aware.html](http://www.palyme.org/dare-2B-tick-aware.html).

2) Spray your shoes and clothes with products containing **permethrin**. If applying permethrin to clothes yourself do so in a well vented place like an open garage, and carefully follow manufacturer’s instructions. Permethrin treated shoes and socks were found to be 74 times less likely to have a tick bite. Note: permethrin is **NOT** to be used on skin. Commercially sold permethrin treated clothes typically last up to approximately 70 washings.

3) Wear light colored clothes (makes it easier to see ticks)

4) Tuck your pants into your socks (dorky yes, but a good prevention measure)

5) Wear long sleeves

6) Wear enclosed shoes (no flip-flops)

7) Pull back and secure long-hair

8) Wear a hat.

9) Avoid standing or walking in tall grass and near bushes. Walk in center part of trails.

Ticks need moisture to survive – so increase sunlight in your outdoor areas to minimize/eliminate tick habitat. Ticks especially like rock walls and stacked wood because of the dampness and shade provided. Be especially tick-attentive within nine (9) feet of a wooded area within or bordering your lawn.

**Damminix** tick tubes work well, looks similar to toilet paper roll stuffed with cotton-ball like material which is treated with permethrin. Place in several shady outdoor locations around your home.

Do not allow pets to sleep on your bed, sofa, or other furniture where ticks can fall off and lie in wait to possibly attach to you. Cats are especially vulnerable for bringing ticks indoors.

Dry clothes and tumble dry on high heat for at least ten (10) minutes, and take a shower within two hours of possible contact to hopefully wash off ticks not already attached. Attached ticks do not wash off.
Check scalp and hair as well as all crevice body areas, examples: between toes, behind knees, belly button, groin area, armpits, under skin folds, neck, ear area, etc. Obviously having a close friend to check you will be most helpful. You cannot check too much! Ticks can be as small as a poppy seed.

Ticks stay attached to hosts, feeding for several days. They secrete novel pain killers, called kininases, in their saliva which help them go unnoticed, meaning you may not feel a tick bite. If you have been bitten previously, you may notice a small red bite mark, which can be itchy. If there is no tick at such a site, you may have already scratched it off without knowing it.

If tick is noticed on skin, do not twist, do not use petroleum, do not use rubbing alcohol, or try to burn the tick off – instead use a tick card or tweezers to gently grasp tick as close as possible to skin and gently pull straight up. Avoid squeezing the tick, or using the above listed methods, because the tick may regurgitate its disease pathogens in you. It is okay if the tick’s head or mouthparts remain in the skin. Disinfect the attachment area. Save the tick on a piece of clear tape against an index card and place it in the freezer within a plastic bag noting the date the tick was removed. Make sure the zip-lock bag with your sample is tightly sealed so the tick cannot escape. Save tick in freezer for as long as 3 months or whenever symptoms become evident, whichever occurs first. If symptoms appear, take bag with tick to doctor for testing.

Tick Identification and Testing resources:
1. The University of Rhode Island offers tick testing for identifying diseases see [https://tickencounter.org/tick_testing](https://tickencounter.org/tick_testing) for details.
2. UMASS Amherst identifies ticks and tests for the most common pathogens based on tick species. See [https://ag.umass.edu/services/tick-borne-disease-diagnostics](https://ag.umass.edu/services/tick-borne-disease-diagnostics) for details.
3. The Maryland Department of Health offers a Tick Identification service. Visit their website, [https://phpa.health.maryland.gov/OIDEOR/CZVBD/Pages/Tick-Identification.aspx](https://phpa.health.maryland.gov/OIDEOR/CZVBD/Pages/Tick-Identification.aspx) complete the submission form, and mail your sample to their office in Annapolis.

For pictures of various ticks refer to [Maryland Tick Identification Chart (PDF)](https://www.health.maryland.gov/OIDEOR/CZVBD/Pages/Tick-Identification.aspx)

**Signs and Symptoms of Untreated Lyme Disease**

Untreated Lyme disease can produce a wide range of symptoms, depending on the stage of infection. These include fever, rash, facial paralysis, and arthritis. Seek medical attention if you observe any of these symptoms and have had a tick bite, live in an area known for Lyme disease, or have recently traveled to an area where Lyme disease occurs.

**Early Signs and Symptoms (3 to 30 days after tick bite)**
• Fever, chills, headache, fatigue, muscle and joint aches, and swollen lymph nodes
• Erythema migrans (EM) rash:
  ◦ Occurs in approximately 70 to 80 percent of infected persons
  ◦ Begins at the site of a tick bite after a delay of 3 to 30 days (average is about 7 days)
  ◦ Expands gradually over a period of days reaching up to 12 inches or more (30 cm) across
  ◦ May feel warm to the touch but is rarely itchy or painful
  ◦ Sometimes clears as it enlarges, resulting in a target or “bull’s-eye” appearance
  ◦ May appear on any area of the body
  ◦ See examples of [EM rashes](https://www.health.maryland.gov/OIDEOR/CZVBD/Pages/Tick-Identification.aspx)

**Later Signs and Symptoms (days to months after tick bite)**
• Severe headaches and neck stiffness
• Additional EM rashes on other areas of the body
• Arthritis with severe joint pain and swelling, particularly the knees and other large joints.
• Facial palsy (loss of muscle tone or droop on one or both sides of the face)
(Continued Signs and Symptoms of Untreated Lyme Disease)

• Intermittent pain in tendons, muscles, joints, and bones
• Heart palpitations or an irregular heart beat (Lyme carditis)
• Episodes of dizziness or shortness of breath
• Inflammation of the brain and spinal cord
• Nerve pain
• Shooting pains, numbness, or tingling in the hands or feet
• Problems with short-term memory

Images of typical Lyme disease symptoms:

lyme disease bullseye rash
Photo source: CDC

“Classic” erythema migrans rash
Facial palsy
Swollen knee

Sources:
https://palyme.org/dare-2b-tick-aware/
https://www.epa.gov/insect-repellents
https://tickencounter.org/
https://tickencounter.org/faq/tick_bites
https://www.mayoclinic.org/diseases-conditions/lyme-disease/symptoms-causes/syc-20374651

Steve O’Brien, ’18

Question "A": How do you fix a broken tomato?
(See answer "A" on last page.)

Continuing Education Opportunities

May 4
1:00 – 2:00 pm
Name That Tree - Anita Leight Estuary
Bring in some branches with leaves and take part in a hands-on lab to learn how to tell deciduous trees apart. Must register for activities. Go to HC online registration or call 410-612-1688

May 4
9:00 am – 12:00 pm
Identifying Invasives - Longwood Gardens - Acer Room & throughout the gardens
Join experts in the classroom and the gardens to explore the history, identify characteristics and management strategies needed to manage invasive plant populations in our region.
Fee: $49.00 To register online go to www.longwoodgardens.org or call 610-388-5454

May 5
12:00 pm – 2:00 pm
Rain Barrel Workshop - Church of the Guardian Angel, 2631 Huntingdon Ave.
Learn about how Baltimore’s rainwater becomes storm water run-off while painting and installing a rain barrel. All participants will take home a free barrel! Start harvesting that precious rainwater and make a positive impact on the planet! For more information go to - http://www.bluewaterbaltimore.org

May 6
9:00 am – 12:00 pm
Succulents and Structures - Longwood Gardens – Catalpa Room
Many of these plants have adapted to the harshest conditions in the world. Take a global trek through the stunning succulents that live and thrive on rocks. Make your own succulent structure. Fee: $139.00 To register online go to www.longwoodgardens.org or call 610-388-5454

May 6 1:00 – 4:00 pm
Crevice Gardening in a Trough - Longwood Gardens  Catalpa Room
Create your own crevice garden for some of the most alluring and exciting alpine and rock gardening plants. Learn about the culture and care. Participants will leave with design and trough garden. Fee: $49.00 To register online go to www.longwoodgardens.org or call 610-388-5454

May 8 7:00 - 9:00 PM
Evolution of Organic – Film Screening - Havre de Grace Maritime Museum, 100 Lafayette Street, Havre de Grace
The story of organic agriculture, told by those in California who built the movement. By now, organic has gone mainstream – split into an industry oriented toward bringing organic to all people, and a movement that has realized a vision of sustainable agriculture. FREE to the public, and held inside the Havre de Grace Maritime Museum’s main gallery. A discussion will follow the film. 410.939.4800 • hdgmaritimemuseum@verizon.net

May 11 9:00 am – 12:00 pm
Inside the Hive- Longwood Gardens - Batula Room
Are you curious about what goes on inside the beehive? Class begins with an illustrated lecture to give a better understanding, followed by a venture out in the fields. Fee: $49.00 To register online go to www.longwoodgardens.org or call 610-388-5454

May 11 1:00 pm – 3:00 pm
Native Plant Swap - Oregon Ridge Nature Center
It’s time to split your perennials! Bring your extras to the park and trade with others. We’ll have identification resources available and would love to talk about native plants as you trade with others. All ages FREE Drop – In – No registration required!

May 14 9:00 am – 12:00 pm
Weed Identification - Longwood Gardens – Acer Room
Know how to identify the plants that are out of place in the landscape. Specialized instruction will focus on the life cycle, key characteristics and plant structures useful in identification practices. Fee: $79.00 To register online go to www.longwoodgardens.org or call 610-388-5454

May 15 1:00 pm – 4:00 pm
Plant Disease Identification - Longwood Gardens - Acer Room
Using the gardens as your classroom learn to identify common diseases of trees, shrubs, and perennials. Learn to effectively monitor landscapes – when and how to apply control measures including proper horticultural practices. Fee: $79.00 To register online go to www.longwoodgardens.org or call 610-388-5454

May 18 - May 19 12:00 PM - 5:00 PM
13th Annual Secret Garden Tour - Havre de Grace
Tour lovely private gardens along the Chesapeake Bay in historic Havre de Grace. The tour is self-guided and walkable, as all the gardens are within a mile of one another. Tickets a $25 each (ticket covers both days). This is a rain or shine event. This fundraiser benefits the Havre de Grace Maritime Museum and is sponsored by the Gardens de Grace Club. For more information, please call 410.652.9757, or email gardensdegrace@hotmail.com.
May 18  
9:00am – 12:00 am  
Plants for Pollinators - Longwood Gardens – Batula Room  
Discover what will attract hummingbirds, bees, or butterflies to your garden. If you have honey bees, learn what plants to grow to maximize honey production.  
Fee: $49.00 To register online go to www.longwoodgardens.org or call 610-388-5454

May 29  
7:00 pm – 8:00 pm  
A History of Our Most Precious Resource – Watershed Ecology - Natural History Society of Maryland, 6908 Belair Road  
Explores how human activities have impacted the Earth’s natural water cycle on an unprecedented scale and discuss solutions that individuals and communities can implement to mitigate the challenges we face. Delivered in an entertaining storytelling format full of imagery that will get you thinking in a new way. For more information go to - http://www.bluewaterbaltimore.org

June 6  
5:00 pm - 6:45 pm dinner – lecture 7:00 pm – 8:00 pm  
Enjoying the Outdoors Safely in the Age of Lyme Disease - Ladew Topiary Gardens  
Dr. John Aucott will discuss the current outlook for ticks and tick-borne diseases in Maryland. Ways to prevent tick bites will be highlighted.  
Fee: $40.00 members $50.00 nonmembers To register call 410-557-9570 Registration should be made in advance and accompanied by payment.

June 15  
9:00 am  
All You Need to know about Hydrangeas and Clematis - Valley View Farms  
Two bestselling plants have the most questions asked about them. “When should they be pruned?” and “Why aren’t they blooming?” We will go over the top varieties for our region and present the best care practices for both groups of plants.

June 16, 17, 18, 19, 20, and 21  
2019 International Master Gardener Conference – Various Locations in Pennsylvania  
Registrations is now open! http://www.cvent.com/d/hggxlp. You are encouraged to pre-plan your conference choices before you sign on to the registration site.

Volunteer of the Year

Congratulations Ronnie Grevey!
May-June Harford County Master Gardener Calendar

The below Calendar entries are only a small sample of the scheduled Master Gardener events. Please refer to the following link to view the entire Harford County Master Gardener calendar https://calendar.google.com/calendar/b/3?cid=bWFzdGVyZ2FyZGVuZXJzaGNAZ21haWwuY29t

MG Stephanie Flash is the contact for changes and additions to our new calendar. Please send calendar requests, changes or additions to mastergardenershc@gmail.com

<table>
<thead>
<tr>
<th>Wednesdays</th>
<th>6-8 pm</th>
<th>Master Gardener Training class</th>
<th>Extension Office</th>
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<tbody>
<tr>
<td>May 2</td>
<td>10 am</td>
<td>Monthly MG Meeting PLANT EXCHANGE!</td>
<td>Extension Office</td>
</tr>
<tr>
<td>May 3</td>
<td>8:30 am -1:30 pm</td>
<td>Bel Air Garden Mart</td>
<td>Bel Air Armory</td>
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<tr>
<td>May 4</td>
<td>10 am- 4 pm</td>
<td>Ladew Garden Fest</td>
<td>Ladew</td>
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<td>May 30</td>
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<td>June 6</td>
<td>7 pm</td>
<td>Monthly MG Meeting</td>
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The University of Maryland Extension programs are open to any person and will not discriminate against anyone because of race, age, sex, color, sexual orientation, physical or mental disability, religion, ancestry, national origin, marital status, genetic information, political affiliation, and gender identity or expression.