# March 2018 - Vol 4 No. 3

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# Adding Native Spring Ephemerals to Ornamental Flower Beds

By Melanie | March 2018 - Vol 4 No. 3

As we march into spring when seed catalogs and garden centers begin to advertise all the new extravagant and exotic blooming colors of annuals and perennials, please pause to consider adding a few native wildflowers to your ornamental gardens. Discover the potential these forgotten treasures have to offer. Also, by cultivating wildflowers, one gains insight into seasonal rhythms and life cycles simply by looking into one's own backyard. Furthermore, gardeners will find opportunities to learn about the medicinal properties of these exquisite and dainty short-lived delights.

Spring ephemerals are the first hues that briefly pop out under the sun before leaves appear on the trees.  They flourish in the woodlands below the composting leaves that provide shelter and nutrients.  These beautiful wildflowers have structures that evolved to insure their survival. Some only attract specific bee types, while others close their flowers on cloudy days. Certain ephemerals coat their seeds with elaiosome (fleshy appendages the ants will eat), establishing a myrmecochory relationship with ants. **Myrmechochory** is the scientific term for ants collecting seeds and dispersing them. What better drama can be viewed than these impermanent spring wildflowers that bring the first excitement and stimulation to the season of rebirth?

When I lived in England (during grad school, studying the domestication of plants and animals), I hiked miles in the rain, gales, and snow. I'll never forget the delight and endless giggles the daffodils gave me, happily shivering in a "cat's nose" — the British name for a cold northern wind — as I trudged up the hills to Walkley in Sheffield. As a Mississippi native, this gave me uplifting, golden, comic relief in late February during the brutal, endless wet, grey, twilight days. Now that I am in Virginia, every year (before growing season) I look forward to seeing *Eranthis*, crocus, Lenten rose, and my forever friend, February gold daffodil in Mr. Peter's overgrown garden. These ornamental plants grow wildly here as they did in the U.K., yet long ago, they were purposely placed by a thoughtful gardener. When I participated in archaeological surveys, it was always very special to find ornamental gardens that had outlasted the pioneer settlements. This insight inspired me to introduce native wildflowers into established gardens that are thriving, low maintenance, but perhaps a bit overgrown. Perfect for the garden beds that "got away" or sit by the edge of the woodland.

The focus here is on native ephemerals that bloom in our area in March.

*Photo: Rotary Botanical Gardens*

**Bloodroot** (*Sanguinaria canadensis)* is also known by many other common names, including puccoon-root, coon root, snake bite, and Indian paint. www.nps.gov/shen.

This delicate white-petaled wildflower grows in partly sunny to shady deciduous woodlands in well-drained, rich soil (pH 4.5-7). It can easily self sow if leaf litter is removed around the plant to expose bare soil.

**Propagation** through dividing rhizomes is easier than harvesting the seeds Divisions should be made in early fall; not in hot weather. Collecting seeds is challenging; to succeed, one must know the plant's lifecycle to carefully watch the pods turn color from green to dark. So I'd suggest you give up on sowing bloodroot seeds, and simply enjoy watching how ants spread the bloodroot seeds; it's a delightful display of mutualism.

**Here's how this mutualism works.** Many woodland wildflowers have a fleshy, fatty appendage called an elaiosome that ants like to eat. The ants will carry the seed back to their colony, feed on the bit with nutrients, and discard the seed into the "compost pile." The seed will then have an ideal place for growth. The seeds of spring ephemerals can be heavy because they have to push out of the heavy "horizon O" layer of the soil. The horizon O layer is the topmost layer of soil, and it is the organic material, mostly decomposing leaves, located above the next layer, topsoil. When the seeds are fairly heavy, they are less likely to be carried off by wind, paving the way for a fabulous beneficial relationship with ants.

Hive bees and bumble bees will pollinate bloodroot, even though the blossoms have no nectar. They attract the bees looking for food when other flowers are not yet in bloom. If the weather is too cold for the bees to be active, bloodroot can shoot pollen out of its sacs to cross-pollinate, and like many ephemerals, can make seeds without insect aid. Large patches of bloodroot can be an indication that an ant colony has been collecting seeds for many years. The new generation of seeds do not often travel far from the parent; therefore, habitat fragmentation, over-population of deer, and poaching (illegal removal of wild plants) can easily wipe out a bloodroot community. By planting bloodroot in your garden, you can assure its future

existence. It is a beautiful groundcover that is so much fun to watch.

Bloodroot gets its name because orange-red sap runs through its stem and rhizomes, and this sap can permanently stain. *Sanguinaria* comes from the Latin word for blood. The Native Americans used it as paint for their baskets and faces. They also added the rhizomes to a mixture to cure skin irritants like eczema and ringworms. The sap has anti-inflammatory and antimicrobial agents, but can be toxic, too. It has been used in toothpaste and mouthwash, but this practice has been discontinued due to pre-cancerous lesions in users. www.ncbi.nlm.nih.gov. For more on this topic, see Va. Tech's RootReport, www.rootreport.frec.vt.edu ("We provide research and extension services for people who work with nontimber forest products (NTFPs), including medicinal, edible and decorative plants and fungi).

*Dutchman's Breeches*
*Photo: Jay Sturner*

**Dutchman's Breeches** (*Dicentra cucullaria)*

This wonderful wildflower looks like an upside down pair of white pantaloons; hence, the name. *Dicentr*a is Latin for spurs. Like bloodroot, it is in the poppy family. It thrives under the shade and partial sun in rich, moist soil under the leaf litter (pH 5-6). The flowers last only for a few days. The entire plant will disappear near mid-summer, whereas bloodroot's broad, sand dollar-like leaves will continue to cover the ground as an accessory. These fancy trouser-like flowers are dependent upon insect carriers, like most spring ephemerals. However, Dutchman's breeches contain nectar that a specialized bee with a long proboscis inserts deep into the pants's leg to lick out the sweet surprise. This special bee is able to unload a lot of pollen for the Dutchman in return for its meal. There is another clever bee that has been observed to cut the bottom of the britches so that nectar pours out. Alas, no pollen is accumulated this way and the wildflower gains no benefit.

Dutchman's breeches can be considered to be poisonous; therefore, be aware of neighbors and animals that may be around. It contains aporphine and protopine, which are central nervous system depressants found in the opium poppy. This plant is also known as "staggerweed," since farm animals often staggered after foraging the plant in pastures. European settlers used this plant for skin diseases and urinary tract infections. This is probably a plant that you want to look at but not touch. Which leads to the introduction of the Dutchman's sister plants: bleeding heart and squirrel corn. These siblings can be planted with the Dutchman, although squirrel corn blooms later. Bleeding heart is a nice addition to hosta gardens. Bleeding hearts successfully self-sow and are easily weeded. They all have tubers that can be divided in fall or early spring. If you are a brave gardener and consider planting the Dutchman's breeches, they grow harmoniously with trout lily, spring beauties, and ferns such as the fiddleheads. Have no fear and enjoy what fun this band of merriment can add to the garden! wp.stolaf.edu/woodlands/ephemerals/dutchmansbreeches.

*Photo courtesy of Virginiawildflowers.org*

**Spring Beauty** *(Claytonia virginica),* also known as the "wild potato" — is possibly the first food a bear finds as it stretches out of hibernation into an array of peppermint-striped flowers. Mind you, devouring the entire field for the little corms (which can be divided by gardeners), are not much food for a hungry bear. These sweet petite flowers only last a few days but will continue to bloom until the end of May. They blend in well with ferns and other wildflowers with rich, damp soils (pH 5-6). They thrive next to creeks. A ground bee collects the pollen to feed its larvae. The delicate flowers will close on overcast days to protect themselves. These little lovelies are easily overlooked in the wild.

Spring beauty is in the Purslane family and contains vitamins A and C. The Iroquois tribes crushed the roots to make a concoction for colds and cunvulsions. There is an enlightening Chippewa story about how spring beauty was created, and it's recounted at the website of the Indiana Native Plant and Wildflower Society, www.inpaws.org/spring_beauty.pdf.

*Photo: Adamovic Nature Photography*

**Trout Lily** (*Erythronium americanum),* also known as fawn lily, dogtooth violet, and adder's tongue.

This fantastic flower has fabulous spotted leaves that create a strong interest for garden beds. They grow well with spring beauties and ferns because they like the same environment. Their seeds develop corms that send out runners or droppers to find nutrients to make more corms. A single seed can make up to ten plants, which in a few years creates a colony. Trout lily can therefore be a good plant to help with erosion. It will also close its flowers to protect itself during crisp spring mornings. Tiny little flies may act as pollinators. It is important to know that single-leaf plants are sterile and are the strongest for propagation. Divide these and be patient for them to bloom after a couple seasons. Disturbing blooming trout lilies may be damaging to the plant's life cycle.

Trout lily is sometimes used in salads and the roots have been used in teas to reduce fevers; **however, it has been known to cause stomach upsets** in some people, so don't try this until you do some more extensive research! It has a chemical that prevents cell mutation and is being studied for cancer cures. The Native Americans used the leaves as a poultice for skin ailments. It is said that Cherokees would chew the root and spit into the water to get fish to bite! altnature.com//troutlily

**Toadshade Trillium** (*Trillium sessile)*

*Trillium sessile growing wild in Scotts Run Nature Preserve in Fairfax County. Photo: Fritz Flohr Reynolds.*

I just couldn't end without giving a huge shout-out to trilliums. They are so enchanting and easily identified. They are also in the lily family and can coexist with the wildflowers discussed above. Trillium is from the Latin word "tres" meaning three, referring to the flower parts. The main pollinators are flies and beetles. They have rhizomes which can be divided. Native Americans used the plant parts to stop bleeding.

In order to survive, it is necessary to adapt to the localized environment. Although living organisms can survive nomadic ventures, much can be gained by sustaining our native roots. Sometimes it is best just to let things be. I encourage interested readers to further investigate wildflowers through virginiawildlife.org and to find walking trails to observe these plants before introducing them to their gardens so that they can become acquainted. Kind of like getting to know someone before you let them move in! It will take time to introduce wildflowers into your gardens, but eventually they will begin to grow and bloom as they were meant to, thus coexisting with foreign flowers that have established themselves as Virginians, and finding unity with the past.

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http://http://www.naturalmedicinalherbs.net/herbs/c/claytonia-virginica=spring-beauty.php/herbs/c/claytonia-virginica=spring-beauty.php

https://virginiawildflowers.org

# In the Ornamental Garden

By Melanie | March 2018 - Vol 4 No. 3

March can be considered the first month of spring. It brings rebirth and warm sunny weather. After surviving cold, grey winter days, it is hard not to run out into the garden and begin throwing seeds in the air on the first beautiful day. What are the best ways to prepare for the new growing season?

The first thing you don't want to do is leap into the garden after it's been raining for three days and slosh around on the soggy ground. Be sure to check your soil to make sure it is dry enough to work. If it's safe, begin by cutting back plants that were left for winter interest, seeds for birds, or shelter for small critters. When the beds are cleaned up, edge them again and put down compost and a light mulch, being careful of not to tread on emerging bulbs. This is also a good time to find and divide perennials. Cut back vines that are girdling trees and encroaching into the beds. Moreover, clean around the borders of your beds. For example, rake back leaves further into wooded areas; get a head start by pulling out pesky weeds. Be sure to prune fruit trees, blueberry bushes, and brambles. Do not forget about the roses.

**For detailed March tips and tasks, see our previous issues:**

pmgarchives.com/the-ornamental-garden-in-march/2015

pmgarchives.com/the-ornamental-garden-in-march/2016

pmgarchives.com/the-ornamental-garden-in-march/2017;

**If your lawn needs attention**, you'll find a detailed discussion of March lawn tasks and tips in our March 2015 issue, pmgarchives.com/article/march-lawn-care.

This is a good time for repositioning stepping stones as well. For instructions on this and other lawn and landscaping tips for March, see the Va. Cooperative Extension article at albemarle.ext.vt.edu/albemarle_ext_vt_edu/files/hort-tip-sheets/3-14-march-tips-lawns.pdf. Get ready for lawn mowing: change the oil in your lawn mower and sharpen the blade. You can take the lawn mower to a mechanic to do this if this task is not in your comfort zone.

If the ground isn't conducive to gardening, there are indoor tasks that could be done as well, such as testing last year's seeds for viability and starting seedlings. Tubers such as dahlias can be divided and sprouted indoors too. Another task to consider: clean and organize your garden shed and clean tools. If you've got old **herbicides and pesticides**, don't just throw them in the trash. Learn how to do this task properly at www.epa.gov/safe-disposal-pesticides.

# Upcoming Events- Annual Plant Sale & Spring Lecture Series

By Cleve Campbell | March 2018 - Vol 4 No. 3


**SAVE THE DATE –MAY 5—FOR A GREAT PLANT SALE**

Another year of work, passion, and fun is underway for the 2018 Plant Sale. Most of the plants are donated by Master Gardeners from their own gardens. Some perennials are divided and dug up in the fall preceding the spring sale, and are then faithfully tended by volunteers for several months. There were nine organized potting parties this year where Master Gardeners dug up and potted dozens, sometimes hundreds, of plants from a single garden. Including plants from different gardens ensures diversity, and this year's sale offers over 200 different varieties. Some plants, such as tomatoes, peppers, herbs, and annuals, are grown from seed. The Charlottesville Area Tree Stewards are also at the sale, offering expert advice on their always interesting mix of trees, many of which are also nurtured over the winter.  In addition, there will be expert tool and knife-sharpening services available on site this year.

Native plants are again a focus of this year's sale, with over 50 varieties available. The sale offers the added benefit of advice on selection and care from enthusiastic Master Gardeners. Volunteers are eager to share their experience and will help select combinations that offer dazzling color in a sunny spot or a serene mixture of pastels for a woodland setting. Or, they will offer advice on choosing plants that attract pollinators or choosing plants that don't attract deer. It's fun to share information with people who share your passion, and both customers and volunteers enjoy the morning.

The sale requires many months of planning and work by at least 90 Master Gardener volunteers. But the proceeds are then available for projects that benefit the community. That's the really important part of the fun—being able to fund an array of Master Gardener projects such as: school garden clubs; horticultural courses as part of a re-entry program at the Albemarle-Charlottesville Regional Jail; demonstration gardens at the Senior Center and Sentara Martha Jefferson Hospital; *The Garden Shed* online community newsletter; the Garden Basics program, which offers classes for beginner gardeners; Spring Lecture Series, which offers evening horticultural presentations to the public; Healthy Virginia Lawns, which promotes Best Management Practices in lawn care; and a Horticulture Help Desk, open to telephone and email inquiries five mornings a week from mid-March to mid-October, and at least two mornings a week the rest of the year. In 2017, PMG made a $5,000 grant to the McIntire Botanical Garden project and gave educational horticultural grants to 16 Charlottesville/Albemarle schools. The Plant Sale is an important source of funding for all these projects.

So, when you get the itch this spring to dig in the dirt and watch things grow, remember that there have been industrious Master Gardeners already hard at work, ready to offer plants, advice, and contagious enthusiasm at their Spring Sale!

**SET ASIDE SATURDAY, MAY 5, 2018 TO JOIN US AT Ix PARK, SECOND STREET SE AND ELLIOTT AVENUE, DOWNTOWN CHARLOTTESVILLE, FROM 10:00 A.M. TO 2:00 P.M. WE ARE OFFERING A LONGER SALE TIME WITH A LATER START TO ACCOMMODATE FAMILIES BUSY WITH SATURDAY MORNING ACTIVITIES. JOIN US! IT'S A GREAT EVENT FOR A GREAT CAUSE—AND YOU'LL FIND GREAT PLANTS!**

### Spring Lecture Series

## 2018 Spring Lecture Series #3: Four Season Garden Design

**March 22** @ 7:30 pm – 9:00 pm
5th St. Albemarle County Office Building, 1600 5th Street Ext
Charlottesville, VA 22902
Find out more »

## 2018 Spring Lecture Series #4 – Protecting Your Garden from Deer: Plants and Props

**March 29** @ 7:00 pm – 8:30 pm
5th St. Albemarle County Office Building, 1600 5th Street Ext
Find out more

# The Mexican Bean Beetle

By Cleve Campbell | March 2018 - Vol 4 No. 3

“History does not necessarily predict the future,” and “past performance does not necessarily predict future performance” are two clichés that I would like to have a nickel for every time I have heard them. Now in vegetable gardening, those words of wisdom could not be further from the truth when it comes to the never-ending battle with this pest in the vegetable garden.  I know that every July, the Mexican bean beetle will show up and begin to devour my bean patch. So before the rush garden season gets revved up, I’ll take a little time to do a little planning and research on the annual opportunity the Mexican bean beetle affords me each year with its annual visit to my garden.

**History**

The Mexican bean beetle, *Epilachna varivestis* Mulsant, a relative of the ladybug, is an above-ground chewing pest which feeds on legumes (common green beans, shell beans, lima beans and soybeans) and is one of only two destructive North American species in the otherwise beneficial and economically important ladybird beetle family, which contains over 400 species. The other destructive North American relative is the squash lady beetle, *Epilachna borealis* Fabricius, which feeds primarily on cucurbits (cucumber, melon, gourds, squashes and pumpkins).

Native to the high elevations of western Mexico, the Mexican bean beetle was first identified in the United States in the mid 1860's but was not recognized as a serious pests until 1883, when severe damage to wax beans was reported in Colorado.

In 1918 the Mexican bean beetle was first discovered in Alabama and by the late 1920's, the beetle had spread as far north as Canada and west to Michigan. In the early 1930's research was conducted in Connecticut to develop methods for "checking the ravages of the Mexican bean beetle in Connecticut."

The conclusion of the Connecticut researchers proved to be interesting: that various sprays — both poisonous and non-poisonous to humans — **were more effective when plants were given more space** — at least 4-6 inches apart. Highly significant was the discovery that certain non-poisonous sprays and dusts had proven themselves to be just as satisfactory as the poisonous types. The use of non-poisonous sprays allowed the grower to spray the plants before and after the pods formed with no fear of finding poisonous residue on the beans at harvest. The poisonous insecticides used in the research included barium fluosilicate, calcium arsenate, and magnesium arsenate. The grower was instructed **not to use materials** containing arsenic or any fluosilicate compound once bean pods had formed. **Non-poisonous insecticides** utilized in the research were dusts and sprays containing pyrethrum and derris root, a tropical plant which contains the natural insecticide Rotenone. www.ct.gov/Circular 109 ("Control of the Mexican bean beetle in Connecticut," 1935).

Unfortunately for those of us here in central Virginia, damaging populations of Mexican bean beetles are most common in the Mid-Atlantic and southern Appalachian Mountain regions of the United States and remain a devastating pest to common snap beans and lima beans.

**Identification**

Adult Mexican bean beetles are similar in size and appearance to their beneficial cousin, the ladybug. They are either yellow or copper with sixteen black spots arranged in three rows. Their bodies are oval and about ¼ inch long, a little larger than the ladybug. Adults can walk or fly but are generally sluggish once they locate a suitable plant — such as my green bean patch. Most of their adult life is spent feeding and mating in the host canopy, but adult beetles will fly long distances if food becomes scarce.

Adult bean beetles generally overwinter in groups, under leaf litter or pine needles and emerge in the late spring or early summer.

*Adult Mexican bean beetle, Photo by James Castner, University of Florida*

*Ladybug Beetle*
*Photo: Scott Brown, USDA, ARS, AFRS*

**Eggs**

Eggs of the Mexican bean beetle are light yellow when first deposited but darken when they are close to hatching. They are generally deposited in clusters of 40-60 eggs per cluster on the underside of the bean leaves. Each female will lay an average of 460 eggs. In 5-14 days, depending on the temperature, the eggs will hatch.

*Mexican bean beetle eggs, Photo by John Capinera, University of Florida*

The larva are cylindrical and soft-bodied. They are yellow and covered in spines that are either black or yellow with black tips. They generally remain on the undersides of the leaves where they continuously feed on leaf tissue. The larva will go through four developmental stages or instar stages over an average of 20 days. The first instar stage develops in 4-6 days, the second instar lasts about 2-4 days, the third instar stage develops over 3-5 days, and the fourth and final instar stage develops over a 6-10 day period.

*Mexican bean beetle larva. Photo by James Castner University of Florida*

Pupa

Pupae are similar in general appearance to larvae, however at this stage, the beetle attaches to a plant by its posterior end and becomes immobile. Pupae are often found aggregated on a single leaf in the lower half of the plant canopy. Pupation usually lasts for about nine days, and the life cycle begins again. Multiple generations occur annually in Virginia.

*Mexican bean beetle pupae. Photo by North Carolina Cooperative Extension*

*The Complete Life Cycle of the Mexican Bean Beetle. Photo by Purdue University*

### Feeding

Both adult and larva feed on plant tissue with chewing mouthparts. The majority of the feeding occurs during the third and fourth instar stages — about 12 to 20 days from when the eggs hatch.

Beetles generally feed on the lower or underside of the leaf, while avoiding veins, creating a lacy, skeletonized appearance of the remaining leaf. Beetles generally feed primarily on the foliage, but they will also feed on the bean pods and flowers once they become present.


*Damage caused by Mexican bean beetle. Photo by James Castner, University of Florida*

### Control

There are several management practices available to the gardener to aid in controlling the Mexican bean beetle.

### Plastic mulches

Mexican bean beetle adult and larvae are deterred by direct light. Field experiments at Virginia Tech have shown that Mexican bean beetles are less likely to colonize and deposit eggs on beans mulched with metalized and white plastics, compared to bare ground and black plastic. There was also less foliar and pod damage and significantly greater yield when the beans were mulched with metalized and white plastics than

beans grown on the bare ground or mulched with black plastic.

*Planting beans on reflective plastic mulch may be  effective in helping to control the Mexican bean beetle. Greater damage was detected on beans planted on the bare ground (left) and black plastic (center) than metallic plastic (Right). Photo by L. Nottingham, Virginia Tech.*

### Timed planting

Planting beans in the early spring or late summer can reduce crop damage from the Mexican bean beetle. In Virginia this pest generally hits its period of peak activity in July. By planting beans as early as possible or as late as possible,  you can avoid the beetles' peak period. However, this strategy does carry some risk: planting beans when the soil and air temperatures are still cool often results in slower germination and smaller plants; in addition,  planting early or late increases the risk that the bean plants will be exposed to frost, resulting in damaged or killed plants.

### Physical or Mechanical

Polyester or floating row covers have been shown to successfully reduce the abundance of adult, larvae and pupae populations.

Gardeners commonly use mechanical or by-hand removal to reduce injury from Mexican bean beetles.

Because beetles complete their entire life cycle within the bean canopy, this simple strategy can help control pest damage.

**Biological Control**

The Mexican bean beetle is an invasive pest, and like other invasive criters, has no natural predators in its new homeland. In addition, they are well protected from predatory organisms. They not only have protective spines that adorn the larvae, but also produce toxic, alkaloid secretions that are known to deter many predators on contact.

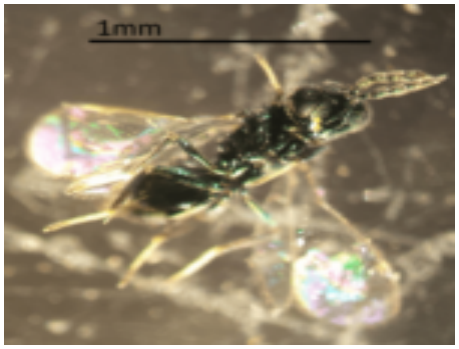
There have been observations that predatory stink bugs, ladybeetle, damsel bugs and assassin bugs have attacked the Mexican bean beetles during their various life stages. However, these insects have proven ineffective at controlling this pest.

In 1966 a tiny, exotic parasitoid wasp, *Pediobius foveolatus,* originally discovered in India, was imported into the United States to be tested for potential control of the Mexican bean beetle. Initial testing determined that this tiny wasp would readily parasitize the larva of the Mexican bean beetle, while leaving the native, predatory insects unharmed. In 1972, several mid-Atlantic states began releasing these wasps to control the Mexican bean beetle. The USDA branches in New Jersey, Maryland, Delaware, and Virginia released wasps throughout these states, focusing on areas with large soybean acreage and high Mexican beetle populations.

In the areas where these wasps were released, the results were pretty spectacular — reducing the bean yield loss 80-100%. The *Pediobius foveolatus* cannot overwinter in the United States due to the cold weather and the lack of an overwinter host. In the wasps' native territory, the winter is either conducive to year-round exposure, or the wasps overwinter in their hosts (overwintering as larvae). Because the Mexican bean beetle overwinters as an adult, these beneficial wasps are without adequate winter refuge in the United States, and they die off during the winter; thus, they must be released each year. The *Pediobius faveolatus* wasps are mass produced by the New Jersey Department of Agriculture and other commercial insectaries. They can be purchased from various on-line vendors that supply biocontrol agents. A list of commercial suppliers can be found at wiki.bugwood.org/Pediobius .

The female wasps lay about 20 eggs in a single bean beetle larvae. The wasp larvae hatching from these eggs kill the beetle larvae. The infected larvae eventually turn brown and die. Adult wasps emerge from the larvae after about 15 days, mate, and then search for more beetles to infect. These wasps will also parasitize the larva of the squash beetle, a closely related relative of the Mexican bean beetle that feeds on cucurbit plants. These black wasps are very small — about 1-2 mm long –and will not harm humans or beneficial insects.

A little planning is required to be successful with this biocontrol agent; it is crucial to time the release. Ideally, the wasps should be released at both one and two weeks after the first instar beetles are discovered on the bean plants. Accurate scouting and timing of release is essential because the wasps reproduce within the third or fourth instar stage of the Mexican bean beetle larvae: so it is very important that the Mexican bean beetle instar larvae are present when the wasps are released. The general rule of thumb is to release the wasps as soon as the beetle eggs begin to hatch.




*Pediobius foveolatus, an exotic parasitoid wasp of the Mexican bean beetle. Photo by L. Nottingham, Virginia Tech.*

*Pediobius wasps attacking Mexican bean beetle larva. Photo by State of New Jersey Department of Agriculture.*

*A Mexican bean beetle larva parasitized or mummified by a Pediobius foveolatus wasp. Photo by L. Nottingham*

**Chemical Control**

There are a number of insecticides approved to control the Mexican bean beetle. The common names for these approved insecticides include: acephate, carbaryl, malathion. A number of organic insecticides have been evaluated, including azadirachtin, pyrethrins, and spinosad, and all provided significant control of the Mexican bean beetle. You'll find more information on these insecticides and their use at your local extension office.

The Mexican bean beetle has quite the history, and like other invasive pests, it arrived in our area without a natural enemy and has survived in generous numbers. Fortunately, the home gardener has a number of ways to control this pest in the bean patch. They include: plastic mulch, removing them by hand, row covers, biological controls, and chemicals, both organic and synthetic.

Thanks for stopping by The Garden Shed; we look forward to your visit next month.

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# In the Vegetable Garden-March

By Cleve Campbell | March 2018 - Vol 4 No. 3

**"China-based spotted lanternfly hits Virginia, threatens state's wine industry" —** this was the headline of the Williamsburg-Yorktown Daily Newspaper on February 14. The **spotted lanternfly** is a plant hopper native to China, India and Vietnam. It has also been introduced in South Korea and Japan. In the U.S., the spotted lanternfly has the potential to greatly impact the grape, hops, tree fruit, plant nursery and timber industries. This invasive pest that was first identified in Pennsylvania in 2014, has recently been discovered in Frederick County, Virginia. The spotted lanternfly is highly invasive and can spread rapidly when introduced in new areas.

Should you find an insect that resembles the spotted lanternfly, please take it to the nearest Virginia Cooperative Extension county office. There will be no charge for the identification.

**We will be doing a full article on the spotted lanternfly in the upcoming months**.

*Adult Spotted Lanternfly. Photo by Doug Pfeiffer, Virginia Tech Entomology.*

*Immature Spotted Lanternfly. Photo by Eric R Day, Virginia Tech*

**Now for the good news:** It's March, and the days are growing longer, so we can be blessed and teased with mild, warm days, or cold, snowy days or rainy and windy days. March is the month of many seasons. Regardless of the unpredictable weather, March is the start of the spring gardening season, a time to complete those winter tasks we dare not carry over into the spring rush season, when there are so many tasks and so little time. Finishing fall and winter garden tasks, purchasing seeds, and starting the 2018 vegetable garden are the March tasks that compete for the gardener's attention. In addition to all those tasks, the gardener is often overcome with a severe case of spring fever brought on by warmer weather and compounded by a visit to a local gardening center or nursery where we are confronted with racks of irresistible seed packets on display! Sometimes it's difficult to remember that it's not yet spring. However, for that gardener with a bad case of spring fever and an urge to dig in the dirt, there are cool weather crops that may be planted in March.

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 planted in our area **after the middle of March:**

Asparagus (crowns)

Collards

Leeks

Mustard

Kale

Onion (sets)

Peas

Spinach

Radish

Turnips

Potatoes

**In a hurry** to get those tomato and pepper seeds started indoors? The general rule of thumb is to start tomato and pepper seeds indoors about **6-8 weeks before the final frost**, which in our area is around May 15th (VCE Publication 426-331), and that means we need to hold off starting those seeds until around the end of March. Peppers, however, need about an additional 2-3 weeks head start and can be started earlier.

It's not too late for a soil test! It never fails — whenever I contact the local extension office about a problem in the garden or orchard, their first response is "when was the last time you did a soil test and what were the results?" So now, before I ask, I test! A soil test is a valuable tool for not only identifying problems but preventing problems as well. A soil test is a tool that allows you to keep your soil at optimum fertility levels and pH levels. To keep your garden fine-tuned, you need to **perform a soil test every 2-3 years.** A soil sampling kit complete with instructions is available for free at your local Virginia Cooperative Extension Office on 5th Street Extended.  For additional information on soil testing check out VCE PUBLICATION 452-129.

**Lettuce is very sensitive to low pH levels (acid)**, so lime should be applied to your lettuce bed if the pH is below 6.0. YES, you will need a soil test to 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 during storage. Make a cover for the saw blade with a piece of old gardening hose. Cut a section of the gardening hose to the same length as the 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 seedings 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 down hill. Avoid frost pockets — areas where cold air gathers — or you may be disappointed year after year when flower buds freeze and drop, resulting in little or no fruit.

Often seed catalogs and seed packets indicate a planting time, sometimes using the phrase, "as soon as the soil can be worked." One simple test to determine if the soil can be worked is to squeeze a hand-full of soil into a ball. If the soil holds together in a wet or sticky ball, it's too wet to work. One of my favorite tools to take the guesswork out of knowing when to plant is a soil thermometer. **Soil temperature is the best 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

# Cabbage Bundles

By Cate Whittington | March 2018 - Vol 4 No. 3

Every Spring, Charlottesville hosts the Virginia Festival of the Book. Authors of every genre gather for a few days at the end of March to share and sign recent works. I have been reviewing some of the cookbooks that will be on display this year when the authors present cooking demonstrations to hungry audiences at The Charlottesville Cooking School. One book in particular caught my eye: Ken Haedrich's *The Harvest Baker*.

Cabbages are particularly prolific this year in my brother's winter garden, and Haedrich offers some intriguing ways to use those cabbages, including one very surprising way:  tucked inside a variety of pastry doughs. Having never ventured beyond the ubiquitous cole slaw and my mother's corned beef and cabbage, served annually on Saint Patrick's Day, I decided to play around with some of Headrich's suggestions.  The resulting recipe borrows ingredients and techniques from his cabbage and sausage stuffed buns, a double-crust cabbage pie, and a vegetable turnover. As these yummy treats are a bit labor-intensive to make, I have eliminated taking the extra step of making my own dough. Store-bought puff pastry works beautifully in half the time.

I served these with a bowl of soup for a deliciously simple, and rather filling, supper. They also make delicious snacks, easily picked up and eaten on the run. And–perhaps, best of all–the recipe makes about 18 turnovers that, once assembled, may be frozen and pulled out as needed.

*Ingredients*

Puff Pastry Sheets (2 boxes)

3 Tablespoons unsalted butter (or olive oil)

1 large yellow onion, chopped

6-8 cups Savoy or regular cabbage (1 small head), cored and sliced

1/2 cup chicken stock

Salt and freshly ground black pepper

2 teaspoons cider vinegar

1 Tablespoon Dijon mustard

1 cup Ricotta cheese

2 large eggs, beaten

3 ounces smoked ham or sausage, diced (optional)

2-3 Tablespoons parsley or thyme, chopped

2 cups Fontina cheese, grated (may substitute Gruyere, cheddar, Parmesan, or combination)

Poppy or sesame seeds

*Directions*

1. Follow instructions on the box for thawing and rolling out the puff pastry. One sheet, cut into 5″x6″ oblongs, should make six turnovers. This dough is very easy to work with as long as it is cold.
2. Heat the butter (or oil) in a large skilled over medium-high heat. Add the onion and sauté, stirring occasionally, until soft and lightly browned, about 10 minutes. Stir in the cabbage, one handful at a time, waiting for each addition to wilt slightly before adding more. Season with salt and pepper and add half the chicken stock. Cover, reduce the heat to low, and braise the cabbage for about 10 minutes, stirring occasionally. Continue to cook, adding more seasonings and broth as needed, until the cabbage is very tender and slightly caramelized. When all of the liquid has evaporated, stir in the vinegar and mustard, scraping up brown bits from the bottom of the skillet. Transfer the mixture to a bowl and cool completely.
3. While the cabbage is cooking, prepare the dough, line large baking sheets with parchment paper, and preheat the oven to 375ºF.
4. Once the cabbage has cooled, add the Ricotta cheese and about half of the egg (the rest will be used to glaze the pastry). Stir in chopped herbs and meat, if using.
5. The pastry dough should be cut into rectangles, roughly 5″x6″, ready to assemble. For each turnover: Mound a scanty 1/4 cup of the cabbage mixture just shy of the center of the dough. Top with 1 Tablespoon of cheese. Dab edges of the dough with water, then fold the uncovered half of the dough over the filling and press to seal. Trim with a pastry wheel to make a rounded edge, then crimp the edges with the tines of a fork. Repeat.
6. Place the turnovers onto the baking sheets and brush each one with some of the egg wash. Make steam vents in the top of the crust and sprinkle with poppy or sesame seeds, if desired.
7. Bake for about 30 minutes, until golden brown. Let rest for 5-10 minutes before serving.

**TO MAKE AHEAD AND FREEZE**: Prepare as directed but **do not add the glaze**. Freeze on baking sheets for a few hours, then transfer to freezer bags and freeze for up to 2 months. To bake, place on baking sheets, apply the glaze, and bake as directed for 45-50 minutes.

If you are interested in sampling more dishes from Ken Haedrich's cookbook, consider attending his Book Festival cooking demo on Thursday, March 22 at 10:00 a.m. Details are in this link: www.vabook.org/program/cooking-demo-with-ken-haedrich

Resources:

*The Harvest Baker* (Ken Haedrich, 2017)