



Vermont Extension Master Gardener News



from the office of the
UVM Extension Master
Gardeners

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Hello Vermont EMGs!

Spring is in the air, and the 2017 Master Gardener course is off to a great start! With the first five weeks of class under their belts, the students are happy, excited and very engaged in the course. I hope everyone is enjoying the first edition of our new statewide newsletter. I'm going to kick off my column by providing several updates to the structure of this year's Master Gardener Course.

The EMG program is now using a new online platform called Zoom, allowing users to see and interact with one another through their video and audio feed. This new technology provides both the students and teachers more interaction during the question and answer sessions, and has been a positive addition to the online format.

Several small changes to this year's course also occurred during the registration process. This year, for the first time, students were able to register for one of two possible tracks. Track 1 students take the EMG course and also go on to earn their Master Gardener volunteer certification by participating in the 40-hour hands-on internship. Track 2 students take the online course but do not go on to earn their Master Gardener Certification.

You might be interested to learn that more student's chose to enroll in Track 1 (83 students) than Track 2 (23 students).

The second change in the registration process was the addition of a "contact information consent statement" for Track 1 interns allowing students to share their contact information directly with the chapter steering committees — a barrier to communication in the past. This allows chapter teams to contact new students directly regarding volunteer opportunities, as well as making them a part of their chapter.

In the past there was a designated "project night." In lieu of project night, we held an online "meet and greet" during the first night of class on February 7th. During this time, our staff met with

interns in Track 1 using the video feed on Zoom, and heard about everyone's gardening and volunteer interests. Interns were also able to see and hear from each other. Also new this year, interns can start their volunteer internship during the course, rather than having to wait until the end. The change allows interns to connect earlier and start scheduling their volunteer time in advance of the gardening season.

In October, at the statewide EMG advisory meeting, chapter steering representatives voted to create a more flexible process to connect with new interns. Since there is no longer a designated "project night," chapter teams in each local area now choose how their group connects in person with the new interns in their area. Chapters might host group social events, one-on-one meetings, or invite interns to watch a class and have dinner together in one designated physical location. This new setup allows each chapter to choose what works the best for their committee and the circumstances in their local area.

We hope these small tweaks and changes to the program structure will help everyone to connect in new ways. While the class is no longer in person, the technology is advanced enough to allow great two-way interactive video and audio communication. We've also received positive feedback from student's who say they love the convenience of watching the course from home, and appreciate not having to drive in bad weather. It's exciting that we are reducing the carbon footprint of the EMG program, while also making the class more accessible to Vermonters. If we think and work creatively together we can find new ways to connect both online and in person. Thanks to all the volunteers who have provided input thus far. Together we can make the Vermont Master Gardener program great. Be well, and think spring everyone!

~Beret



Indoor Winter Gardening Questions

Dr. Leonard Perry, Horticulture Professor Emeritus, University of Vermont

How to treat unplanted spring-flowering bulbs, an amaryllis when through flowering, and houseplants dropping leaves, are some of the common indoor gardening questions this time of year. Many also ask if there are food crops that you can grow indoors during winter.

If you purchased spring-flowering bulbs this fall, but didn't get them all planted, what should you do with them? Such bulbs really can't be held over until spring, or for another year, so go on and plant them in pots. If you wait until spring to plant them outside, or in pots, they will start growing with no roots, so won't be successful. Planting them now allows roots to form before they start growing tops.

To grow roots, and receive the cold they need to flower, place potted bulbs in a cool (40 degrees F or less) but non-freezing location, ideally for 10 to 12 weeks. This could be an unheated garage or basement. Or, you could place them outside in a protected area, covered with plenty of bark mulch, straw, or soil. Then remove when growth starts in spring.

If you received an amaryllis for the holi-

days, how should you treat it once it has finished blooming? Once the flower stalk is finished, leaves emerge. Keep the bulb watered and fertilized lightly through the winter. This helps it build up reserves for next year's bloom. You can then place the potted bulb outdoors in summer, keeping it watered if needed. Then in early fall bring it indoors, and decrease watering over several weeks until stopped altogether. Remove leaves as they die back, and let the bulb "rest" for about eight weeks. Then resume watering.

If you had an amaryllis, and followed this process but got no bloom this year, it may not have built up enough food reserves during the year. If you just got leaves, keep the bulb watered and fertilized, and hopefully this coming year it will bloom once again. Sometimes after being "forced" they require a couple years before reblooming.

If you have a houseplant, such as a jade plant, and the leaves are turning yellow and dropping off, what can you do? With a jade plant, leaves dropping off is likely a sign that the soil is staying too wet. As with most houseplants, too little water is better than too much. If in doubt, don't water, especially with "succulents" such as the jade

plant. Make sure the plant is not in a pot with no drainage, nor sitting in a saucer of water. Using a clay pot, which dries out faster than plastic, also is good for plants that don't need much water.

Make sure with houseplants that there is not a layer of gravel or pebbles in the bottom of the pot. Some recommend this for drainage, but in reality it only creates an area where water gathers and roots rot, or decreases the amount of soil in the pot.

If you're eager to grow some of your own food, or at least to see something green this time of year, are there any crops you can grow indoors? In addition to some herbs and sprouts, microgreens would be a good choice. These simply are the immature greens of crops such as lettuce and their relatives, leafy vegetables, and even some edible flowers and buckwheat. Some catalogs sell special microgreen mixes, often with various flavors and colors of leaves. Harvest leaves when plants are only two inches tall, only two or three weeks after they germinate. Grow in seed sowing mixes in shallow containers. They need at least 4 hours of direct sun a day, as in a south-facing windowsill, or you can grow them under plant grow-light fixtures.



Mycorrhizae: Beneficial Fungi in Fertile Soil

Malcolm Beck

Mycorrhizal fungi form a symbiotic association with the roots of most plants. The fungi grow into or between the cells of the roots and use ten percent of the carbohydrates the plant passes from the leaves to the roots. The fungi do not have chlorophyll in the presence of sunlight, so they can't manufacture carbohydrates. In return for the energy taken from the plants, the fungi grow out and search far and wide for nutrients and moisture. They feed the plant so it can continue to manufacture more and more carbohydrate energy. A plant well colonized with mycorrhizal fungi will have the equivalent of ten times more roots than one without the fungi.

Another benefit of this association is that, as long as the fungi is flourishing, it can prevent all root pathogens and damaging nematodes from attacking the plant root.

Decaying organic mulch on the soil keeps both the plant and the many beneficial soil species, such as the mycorrhizal fungi, flourishing so they can help each other.

The appearance of mycorrhizal fungi was reported in 1885 by a German botanist, A. B. Frank, who believed that water and soil nutrients might be entering trees through these fungi. This fungus acts as a link between the soil and rootlets of the plant. It flourishes in humus. When the association is present, plants are strikingly vigorous, achieve good growth, and gain resistance against attacks by insects and diseases.

Among forest trees and other plants, including food crops, the mycorrhizal association is widespread, habitual, and at times essential. It is stimulated when there

is ample light, adequate pH of the soil, good aeration, humus, and moderate soil fertility. It is inhibited by the presence of many chemical fertilizers.

It has been found that these fungi can play an important role in plants grown in infertile soils where phosphorus, zinc, and copper are especially scarce. Mycorrhizae assist tree growth in such soils. As the plants prosper, so do the fungi, since they depend on food from the plants for their own energy. They use about 10% of the carbohydrates transported from plant leaves to the roots.

The efficient system works as follows: As plant roots grow, they encounter zygomycetes, a family of soil fungi. These fungi enter the roots through root hair or root epidermal cells, and grow in the soil. They form hyphae, a network of tiny, thread-like tubes. The hyphae seek out nutrients that are poorly available in the soil areas unexplored by the roots. Hence, the root system is extended by the fungi, since the hyphae enable the plant to explore more areas and to obtain more essential nutrients in useable solution forms than could be possible otherwise.

Within the root, the fungus forms two different structures: vesicles and arbuscles. The former are round, balloon-like structures that store carbohydrates from the roots. The latter are highly branched structures that accumulate nutrients, absorbed by the hyphae, that can be released to the plant.

In studies at Ohio's Agricultural Research and Development Center, it has been learned that the more fertile the soil, the less need there is for mycorrhizae. Also, it has been found that certain fungi perform nutrient-uptake function better

than others. By inoculating apple seedlings with an effective mycorrhizal fungi before planting, growth is stimulated.

The practical beneficial effects of mycorrhizae have been demonstrated convincingly in different parts of the world. Attempts to reforest areas, which failed because of a lack of mycorrhizal fungi, became successful after the soil was inoculated with pure cultures of mycorrhizae-producing fungi or with soils taken from an old forest stand. In the U.S.S.R., for example, certain steppes have been re-forested with oak, after it was found that seedlings inoculated with mycorrhizal fungi were able to resist the extreme climatic conditions. Similarly, high mountain regions of Austria were successfully reforested with spruce by means of mycorrhizae.

In the United States, experiments of prairie soil inoculation produced beneficial effects on poplar cuttings, with better growth and higher survival rate. White pine seedlings cultivated in inoculated prairie soil contained 86% more nitrogen, 230% more phosphorus, and 75% more potassium than plants in untreated soil. It has been demonstrated that mycorrhizal associations unlock food elements from the soil. In experiments, pine seedlings with the fungus had four times as much phosphorus as pine seedlings without it.

Mycorrhizal association is of prime importance in tree nurseries and plantation practices. But it is also important to a variety of other plants too, including many cultivated food crops such as cereal grasses, legumes, fruit trees, and berries.

From *The Garden-Ville Method—Lessons in Nature* by Malcolm Beck

Pests to Watch Out For in Your Garden

Ann Hazelrigg

Late Blight

The good news for the summer of 2016 was that we saw no late blight in the state. This devastating disease of tomato and potato overwinters in the south and “leapfrogs” its way up north on summer storm fronts. The drought conditions throughout the East was most likely the reason the pathogen’s spores never made it to Vermont. Depending on the weather, we may or may not see it in 2017. The disease has already been diagnosed in Florida this February, so we will have to watch as storms progress throughout the summer. We will alert the Master Gardeners if the disease appears in any of the states near us as the summer goes on.



Late blight

Basil Downy Mildew

Basil downy mildew is a fairly recent fungal disease that attacks basil. It does not overwinter here but typically shows up in Mid-July. The symptoms look like a nutritional deficiency in the foliage with yellowing on the tops of the leaves. If you turn the leaves over and look on the undersides, it looks dirty. Those are all the fungal spores of the pathogen. Once the disease occurs, there really is no good control so it is just best to call it quits. If you like to make pesto, make it as early in the season as possible!



Yellowing on the tops of the leaves



Fungal spores of the pathogen

Onion Leek Moth

Onion leek moth attacks garlic, leeks, onions and shallots causing feeding damage that looks like a windowpane (below). If you split open the stem you will find the small caterpillar inside. The pest has 1–3 generations per season, with the second generation causing the most damage in July–August. The caterpillars seem to love garlic scapes! The pest pupates on the foliage with a net-like covering. These can be handpicked and destroyed to prevent the next generation. To manage the pest, you can rotate your allium-growing areas, clean up any old crop debris and delay plantings to avoid that first generation in May. Use of row covers after rotation will also help exclude the pest.



Tomato Hornworm

We saw a fair amount of tomato hornworms in our gardens last year, so not sure if we will have the same populations this summer. Usually the first we notice this voracious caterpillar is when we see all the missing foliage on our plants. They camouflage themselves very well. Handpicking is the best management option for home gardeners.



Spotted Wing Drosophila

The spotted wing drosophila is a recent pest of small fruits and is throughout the state. The small fruit fly with a saw-toothed ovipositor (allows for easily lay eggs in intact ripening fruit) overwinters here and populations build up over the course of the season, so once late season blueberries and fall raspberries are in production they are laying eggs in the intact fruit! This picture from UMaine (G. Dill) shows what happens when infested fruit is picked and left on the counter.



The larvae (maggots) from the fly emerge and your raspberry-eating days are over!! YUK. The best way to manage this pest for home gardeners is to use a good insect netting called Protek 80. Larger mesh sizes will not exclude the pest. I purchased a roll of the netting here <http://www.duboisag.com/> but you may be able to find more home garden sizes at other garden stores. This will exclude the flies as long as it is put on the plants and secured at the ground just BEFORE the berries begin to color up. Berries should be picked daily and chilled immediately.



My Compost Situation



Cheryl Wilfong

As a Master Gardener and Master Composter, people often ask me about compost. My short answer is “Time.” Compost takes time. My next shortest answer is “It depends.” It depends on your situation.

Here’s mine: I live in a rural area, sharing my land with many wild creatures and some neighborhood dogs.

My closest neighbor is a hundred yards away, hidden in the woods. All my neighbors have compost piles in various states of use and disuse. Compost seems like a good idea, but commitment wavers and varies.

My home is in Vermont, which has four strong seasons—a short and sometimes buggy lettuce-green spring followed by a humid Green-Mountain-green summer, a spectacular red-orange-yellow autumn, and a white and cold winter that lasts from Thanksgiving to spring equinox.

Native New Englanders like to say we

have two additional seasons: at the end of winter, we have mud season when the snow melts but the ground is still frozen, and there’s nowhere for the spring run-off to go. And before winter begins, we have November—a month of tain’t season, when it tain’t autumn (the leaves have fallen) but tain’t winter either because the snow hasn’t fallen.

Perhaps tain’t season has the most to teach us about compost because our own compost can seem like “tain’t compost” for quite a long while.

The effect of these seasons on my compost piles is that in the spring, I’m busy dividing plants and giving away baby plants in containers of pure, rich compost.

Summer is a good time for projects—for ripping out overgrown beds and piling cartloads of greenery onto the compost pile. In the fall, I heap on brown leaves and garden clean-up. Then winter freezes my

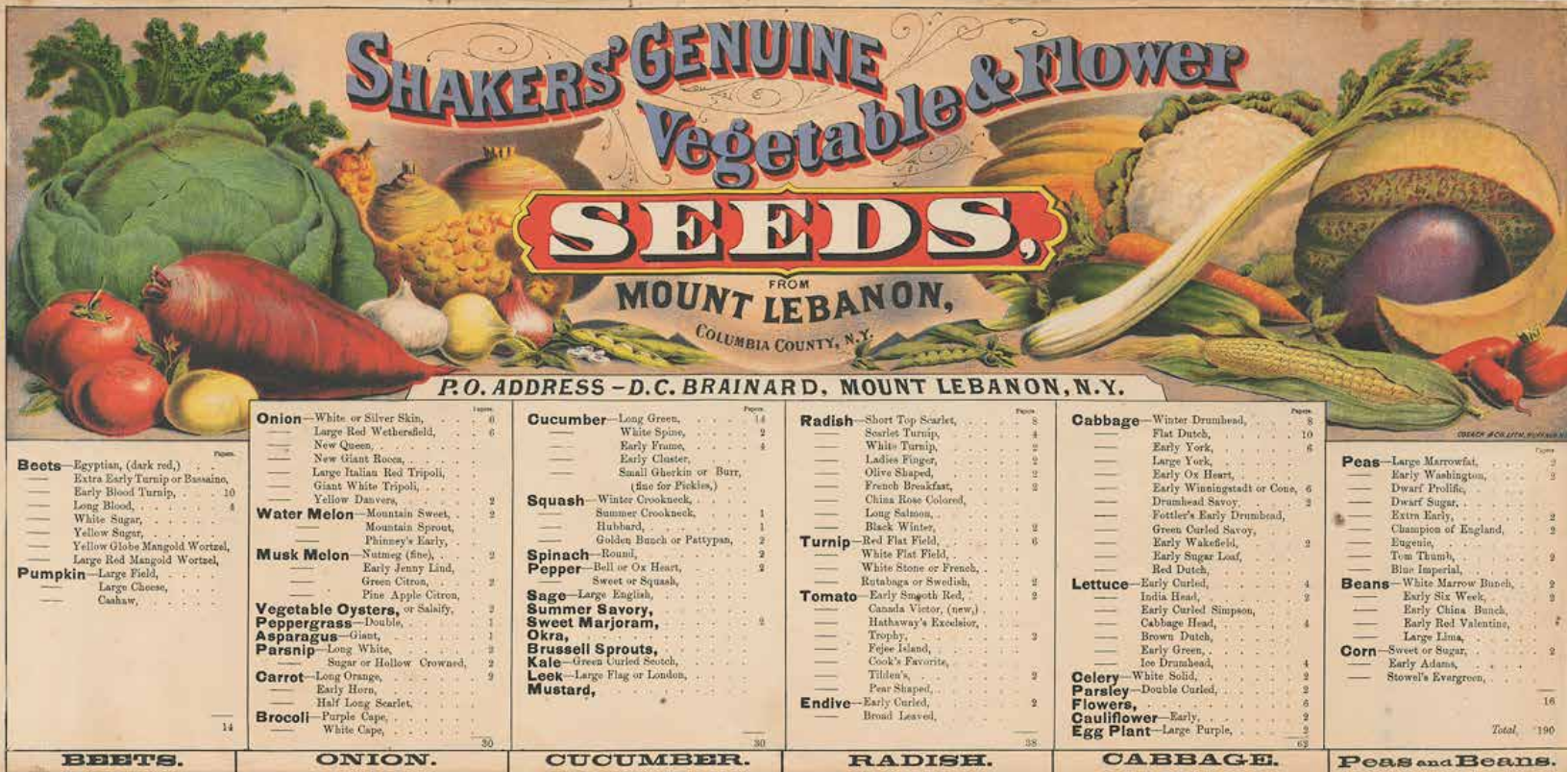
compost into an iceberg, which eventually thaws sometime in April.

If you are looking for a hot compost pile that steams all winter and has dozens of wriggling worms in the summer, that is not my compost pile. My compost is ordinary.

And yet it is extraordinary in that everything decomposes in time. Decomposes into beautiful, rich compost.

Your situation is different from mine, yet your compost too will take time. Perhaps lots of time. While your compost is resting, rest your mind. Your compost isn’t worrying, and you don’t need to worry either. Life is unfolding and the lessons of life are awaiting us there in our very own compost pile.

Cheryl Wilfong is the author of the multi-prize-winning book, *The Meditative Gardener*



Cosack & Co. (Buffalo, New York) lithographers, Box label for "Shakers' Genuine Vegetable & Flower Seeds," chromolithograph, ca. 1870-1890. Winterthur Museum, 1961.0080

The Story of Seed Packets

Oceana Wilson

It's the time of year when colorful displays of seed packets in stores catch the eyes of gardeners and fuel dreams of lush gardens and bountiful crops despite late spring snowfalls. These humble 3 ¼ x 4½ envelopes are not only a welcome harbingers of spring, they are also an American invention with a 200 year-old history.

The Shakers began selling seeds in the 1790s. By the early 19th century seed packets were invented by Shakers in Mount Lebanon, NY. Early packets were cut and glued by hand. By 1810, machines for cutting and printing the packets made production more efficient. The original seed packets were plain brown paper with only limited information such as the variety name.

From the 1790s–1850s Shaker Seeds were the primary seed available for purchase in rural America. This is clearly seen in Vermont newspaper advertisements during that time. In 1807, John Elkins of Peacham, VT announced in The Green Mountain Patriot he had available for sale seeds "just received from the Shakers" from last year's growth including parsnip, muskmelon, drum head cabbage, as well as, English and French turnip. In Bennington, VT Henry James Co. advertised "Shaker Garden Seeds" in 1811. Shaker Seeds were also advertised for sale in Burlington, Windsor, Brattleboro, Montpelier and Danville.

Store owners could purchase a wooden box stocked with individual Shaker seed packets to sell at a profit. The Shaker seed boxes soon became ubiquitous as Charles

Dickens noted in his 1842 travelogue American Notes for General Circulation, "They are good farmers, and all their produce is eagerly purchased and highly esteemed. "Shaker seeds," "Shaker herbs," and "Shaker distilled waters," are commonly announced for sale in the shops of towns and cities." The popularity of the seeds was likely due to their high quality and the range of varieties. The Shaker 1888 Price List of Seeds offered an astounding array including twelve varieties of celery seeds, seventeen varieties of cabbage, and 31 varieties of peas, including 'Canada White Field', 'Yorkshire Hero', 'Bliss's Ever Bearing', 'McLean's Blue Peter' and 'Telephone', the eponymous pea celebrating another great 19th century American invention.





Wild and lovely

getting to know the native plants of Vermont

“My heart found its home long ago in the beauty, mystery, order and disorder of the flowering earth.”

— Lady Bird Johnson

Judith Irven

With their beautiful colors and shapes, and sometimes a subtle fragrance, I have always had a passion for flowers. Of course, as a gardener, I spend countless hours contemplating the best ways to cultivate and display the flowers in my garden. But, perhaps even more, I am in awe of the diversity and beauty of wildflowers that—with absolutely no help or assistance from humankind—thrive in our mountains and meadows.

Some, like clover, daisies and milkweed, bloom prolifically for months on end, and we mostly know their names and their habits. Others are less common and may be quite unfamiliar to many of us. Last June, when hiking around Hogback Mountain behind our house, I discovered a beautiful solitary lily, shown in this picture. Its gorgeous orange flowers decorated with striking purple spots, seemed to smile at the sky. Amazingly it was growing all by itself, and yet it appeared to be flourishing among the thick ferns and grasses. So, that same evening, I asked my husband Dick to take the picture you see here.

Now, with the photograph to remind me of the details of the flower and the leaves, I used a duo of wonderful new books, both published this year, to positively identify the plant I had seen.

The first book, *Wildflowers of New England* by Ted Elliam (published by Timber Press) is an illustrated field guide of all the perennial, biennial and annual flowers that grow wild in the six New England states: The second, *The New Vermont Flora* by Arthur Gilman (published by the New York Botanical Gardens) is an in-depth reference book naming and describing all the plants found growing naturally in Vermont.

In these books I discovered that its official English name is Wood Lily, and its Latin name is *Lilium philadelphicum*. Apparently Wood Lilies are found in dry woodlands or along the edges of fields and, in Vermont, they are considered uncommon or rare, and have only been seen in our eight southern counties.

I also learnt about two other lilies that grow wild in Vermont, the native Canada lily (*Lilium canadense*) and the Tiger lily

(*Lilium lancifolium*) which was introduced from Asia.

For me the bloom-time of the many wildflowers is a sweet reminder of the passage of the seasons—spring, summer and fall. And some wildflowers bloom just briefly, making them even more special. A few days later I returned to see my lovely lily once more, only to find that it was all done flowering for this year. So, unless I find a different plant, a whole year must pass before I see the wood lilies once more.

Learning to see

We humans love to name and describe everything we encounter—from our family and friends to the numerous objects or ideas that interest us, and of course the plants we encounter in the natural world.

We also group them with similar plants, a discipline called ‘taxonomy’. Plants that share certain characteristics are grouped together in families. Thus true lilies are classified in the genus *Lilium* and are grouped with other lily-like flowers into a ‘family’ known as Liliaeaceae.

So, if you come across an unknown plant, you can use its visible characteris-



Trout Lily

tics, such as the color and structure of its flowers and the shape and arrangement of its leaves, to both name it and find its position in the great hierarchy of all plants.

Wildflowers of New England by Ted Elliman

Ted Elliman, who has worked at the venerable New England Wildflower Society for many years, has created a beautiful and extremely comprehensive field guide, covering well over 1000 wildflowers, both native and naturalized, that are found in our region.

The book is organized around flower color—first the white flowers, followed by ones that are yellow, red, blue, green, orange and lastly brown.

At the beginning of the book an easy-to-use identification key or index makes it relatively foolproof to identify and name that unknown flower you discovered on your walk. Start with the color of the flower, and then look carefully at the number of petals in each flower as well as how they are arranged. This lily was clearly orange, there were six petals and they were arranged in a circle. Next study the characteristics of its leaves. In the case of the wood lily it was easy to see that the leaves grew from the stem in whorls.

This information was sufficient to take me directly to a page showing a small number of plants with these characteristics and, by looking at the color photographs and descriptive paragraphs, it was easy to identify the plant I had seen.

The wood lily is grouped with other orange lily-like flowers including the tiger lily found today around old farmsteads but which originated in East Asia. And there is

also the commonplace orange daylily that we see along Vermont roadsides in July and August. But, interestingly enough, the daylilies actually belong to a different plant family entirely.

The New Flora of Vermont by Arthur Gilman

The New Flora of Vermont, the climax of years of painstaking solo research by Vermont native and life-long environmentalist, Arthur Gilman is a monumental reference book, where he both describes and categorizes over 2000 vascular plants—from trees and shrubs to wildflowers, grasses, ferns and mosses—that grow wild in Vermont. Many have been growing here for hundreds of years. Other have been ‘introduced’ by human activity, while still others are relatively recent arrivals, pushing north as our climate changes.

Gilman calls his book a *NEW Flora of Vermont*. In his quest to document the condition of our wild plants today, his starting point was the original *Flora of Vermont*, first published in 1900, with a final fourth edition printed almost fifty years ago, in 1969.

Then, every weekend for twelve long years, he would travel as far as New York and Boston to scour old plant records and dried plant collections archived in libraries, and then roam the length of the state to locate where the different plants can be found today. From here he delved into modern research, especially DNA analysis, to categorize each plant in its correct family and genus.

The culmination of his work, the *New Flora of Vermont*, is an amazing gift to everybody who would like to learn more

about the myriad plants—from the very rare to the commonplace—to be found across our beautiful state.

Plant detective

While the *New Flora of Vermont* provides an abundance of information on any plant you might encounter, using its key system to identify an unknown plant is a somewhat cumbersome process.

A much better way is to use these two books in tandem. Use *The Wildflowers of New England* to find the name, photograph and a brief description of the unknown plant, as I did with my Wood Lily. Now use the index in the *New Flora* to read a longer description, where it is found, as well as information on the other plants in the same genus and family.

In the case of the orange Wood Lily, this was how I discovered the existence of its very close relative, the beautiful Canada Lily (which I missed entirely in the field guide where it is, quite logically, grouped among the yellow flowers), along with the fascinating detail that the Canada Lily is pollinated by hummingbirds!

I never cease to be astonished and beguiled by the wonderful world of nature!

Judith Irven is a Landscape Designer and Garden Writer, as well as Vermont Certified Horticulturist

Photo on left: A Wood Lily—*Lilium philadelphicum*—growing at the south end of Hogback Mountain in Goshen VT (in the Moosalamoo National Recreation Area). Photograph by Dick Conrad.

Garden Sense: How many invasive plants do you have?

Rita Langlais

I don't know what you have, but I do know some of the invasive plants that I inherited when I purchased my property. Before discussing some specifics lets distinguish between invasive and aggressive plants.

According to Webster's New Collegiate Dictionary © 1975 by G. & G. Merriam Co. the definition of invasive is; "... tending to spread; esp : tending to invade healthy tissue ..."

Aggressive plants will have a tendency to spread, however they usually won't invade healthy tissue. In this instance the healthy tissue is most often native wild plants that once lived where the invasive plant now lives. Aggressive plants most often can be kept in control by frequent division. You can use your divisions in other areas of your own garden, or share with friends, or donate them to fund raisers or garden club plant sales. (When donating plants make sure to label each one with its name, bloom color, light needs and bloom time if known.)

Once invasive plants get established it becomes very difficult to control them, never mind eradicate them. Invasive plants originate in many different parts of the world and have been introduced to the United States over many years. Not all invasive plants are invasive in all states. Each state publishes a list of invasive plants for their state. I urge you to check our Vermont's list at www.vtinvasives.org.

When growing conditions are good for the invasive plant, it literally takes over de-

stroying our native plants. A prime example of this is the common Reed Grass (*Phragmites australis*) which is rapidly taking over our native cattails (*Typhaceae*). To see this in action check out both insides of the exit and entrance ramps on/off I-89, Exit 19. The common Reed Grass has consumed those areas where now only an occasional cattail can still be seen.

Reed Grass



Every individual can help prevent the invasive plants from taking over by locating infestations early, monitoring, and removing the plant(s) before they set seed. In order to locate infestations we need to familiarize ourselves with what they look like. Again I suggest you do an online search for each one for great information and pictures of what you are looking for. Many websites will also provide information on how to control them.

The first few plants I'll discuss here are

invasives I inherited with the property. The first of which is called Japanese knotweed (*Fallopia japonica* (*Polygonum cuspidatum*)). I have been fighting this invasive plant for 20+ years and now have it down to the nuisance level of a dandelion. This is the same plant that grows along our riverbanks, roadsides, and almost anywhere. It is practically indestructible. The roots of this plant have been known to lift the foundation of a house if left unattended. Here is a picture of very young plants that I remove almost weekly from my gardens.



Another invasive plant I've been dealing with for 20+ years is Bishop's Weed (*Aegopodium podagraria*). Other common names of this plant are Goutweed and Snow On The Mountain. It is available in solid green or variegated green and white. I'm told the solid green maybe more persistent and spread more rapidly but I might challenge that as my variegated variety has

done very well for itself. This plant was originally introduced to England by the Romans. It has been used for years as a ground cover in areas where weeding and mowing have been difficult. It is beautiful and I must admit I do keep a small patch of it in an area by itself (no other plants), however before I became familiar with the plant I had pulled a lot of it out of other gardens and disposed of it with the other weeds only to help spread the plant. This plant spreads by both underground rhizomes and by seed. To eradicate this plant every speck of rhizome must be removed or another plant will develop, hence the constant monitoring in the gardens where it has been removed. I also insure that the plants cannot seed by removing all the blossoms as they appear. This is what the



variegated Bishop's Weed looks like.

Here is a list of other Vermont invasive plants that are very common to this area:

- ✿ Common buckthorn (*Rhamnus cathartica*), produces abundant fruit berries that are dispersed by birds. It spreads rapidly replacing native vegetation and lowers species diversity.



- ✿ Barberry (*Berberis vulgaris*) originated in Europe, grown for its pretty pink/red foliage in fall. Cultivation of this plant is prohibited in many areas of the U.S. It is a host plant to many moths and in some areas hosts many grain and wheat moths and fungi.



- ✿ Winged Burning Bush (*Euonymus alatus*), originated in Northeast Asia, Japan, and Central Asia. This plant threatens our forests, costal scrublands and prairies. It has cork-like stems of 3 sides (winged).



- ✿ Wild parsnip (*Pastinaca sativa*), is rapidly taking over ditches along most of VT's highways and spreading rapidly into open fields. The blooms of this plant are very similar to the non-invasive Queen Anne's Lace (*Daucus carota*) only yellow in color. It blooms

from June to late summer. It takes 3 weeks for seeds to ripen before re-seeding. Seeds in soil remain viable for 4 years. This is also a very toxic plant. Avoid skin contact with the toxic sap combined with sunlight. It will produce skin rash, blistering and burning and could discolor skin. Whenever clearing this plant, make sure to cover all exposed skin, then strip and wash clothing/gloves, etc immediately. To remove the plant, cut below the root crown before seeds set and remove.



Young wild parsnip

- ✿ Asiatic bittersweet (*Celastrus orbiculatus* Thunb), aka: Oriental bittersweet vine, Chinese bittersweet vine, originated in China, Japan and Korea. This vine uses trees and shrubs to climb and eventually chokes its 'host' support causing a slow death of the 'host'. It is a prolific seeder with approximately two-thirds of its first year seeds contacting soil to germinate, though this number does decrease with succeeding years. It requires both a male and female plant to propagate and will grow in sun or shade.



This list is a very small portion of the invasive plants on Vermont's Invasive Plants lists. I hope it encourages you to check the VT Invasives website for plants that may be in your own gardens/ property and that you will do your part to help control them on your property. If we all control invasive plants on our property we will help keep them in check and help prevent their spread across the state.

Meet one of our projects: Through the seasons at St. Albans City School...



Heather Smith

Start out on the walking path at this Northwestern Vermont school and plan to make frequent stops in wonderment and awe. Along the one-mile walking path in the spring you may encounter students at recess planting their themed raised bed gardens. Fresh salsa gardens, broccoli garden for a Mac and Trees recipe or maybe the 60 x 60 square foot root vegetable gardens are some places you'll find students working with the Farm to School Coordinator and their teachers. Students prep garden sites for planting spring starts and seeds from nearby farms and local seed companies.

Join us in the summer months and find University of Vermont Extension Master Gardeners tending the 700sq foot pollinator gardens filled with busy honey bees from the school observational bee hive, that's right, the bees are housed inside school in a special see-through hive. Walk a little further along the walking path and explore a restored wetland along the elevated boardwalk brimming with summer blooms, frogs, turtles and occasionally youth summer campers exploring.

Take a break at the stone bench under the shade tree before exploring the Christmas Fir Tree Farm. Master Gardeners and summer campers are often found at the northern perimeter of the property watering spring planted fir trees. The students associated with this project are growing trees to donate to needy families at the holidays. Eventually, surplus trees will be sold and monies donated to local charities.

Plan your trip to the school campus just

right and find the blueberry and raspberry gardens brimming with color and fruit. With students not in school full time during the summer months, fruit is picked at peak and preserved for fall cooking and tasting.

As the path winds back around toward school the beauty of the Down to Earth Community Garden is a showstopper with fourteen raised beds brimming with summer produce. Many of these community gardeners are long-term members to the garden and employ square foot gardening and no till methods. Integrated Pest Management is on the minds of many with routine surveillance, collaboration and reporting with Master Gardener community garden members. This fenced in garden space was created in 2009 and remains an active community garden with over 12 dedicated members and their families.

As the walking path approaches school, the 750 sq. ft. bio-retention native plant rain garden draws you closer with curiosity. The basin was created in 2015 to divert impervious surface water runoff, especially during a major rain event, from the upper bus parking lot and roads. This huge basin is planted with native hydrophytic plants and the outfall water drainage area planted with native trees and shrubs. This project, in particular, relies on Master Gardener assistance with ensuring plantings are weeded and properly pruned.

A beautiful Autumn walk on campus and you can't miss the apple orchard. Often you can spy a stream of honey bees working hard to finish up collecting pollen from the nearby vegetable gardens dotted with sunflowers, nasturtiums and fall dahlias.

The root vegetable garden is a busy place in fall with the harvest in full swing. Beets, carrots, cabbage, parsnips, potatoes and sweet potatoes are many of the vegetables planned for fall harvest by students for cafeteria meals and taste tests.

The fall gardens afford many Master Gardener opportunities and events linked to school events. Plan it right and find students outside with our cider press offering fresh pressed cider. We source additional local apples and collect a truckload for cider pressing. A great way to start or end the day at the gardens, these kids are amazing!!

In the winter months, as gardeners we rest...thank goodness!!

If you just can't stay away or wait for the snow to melt the walking path is prime location for snowshoeing, cross-country skiing, or walking the family dog. Often you will see students on campus throughout the winter snowshoeing, snow tubing down the west hill or going on a nature walk with a class. Winter affords us a time for reflection, wonder, and planning.

What will you plan this year? I hope a trip or two is planned to St. Albans, Vermont. We invite you to join us at the St Albans City School Campus Master Gardener Project Site anytime, any season.

To arrange a visit to St. Albans City School or Master Gardener volunteer project hours, please contact Heather Smith at smithh@fcsuvt.org

Heather Smith is the St. Albans City School Farm to School Coordinator and University of Vermont Extension Master Gardener 2011.



Getting Ready for Taylor Park Planting

Patricia New

Extension Master Gardeners, St. Albans Garden Club and Hudak's Nursery joined together on April 15 to help make Taylor Park in downtown St. Albans a beautiful garden space. In the first of three workshops, Judy Zsoldos a Master Gardener for 22-plus years and Kelly Wakefield organized and directed the group to transplant flower plugs into flats in Hudak's wood-fired greenhouse.

Judy also taught the group the ins and

outs of working in a professional greenhouse. She described the planting medium, how to move the plugs into planting trays and the importance of a clean working environment for the plugs to grow into healthy transplants. Emily Frey, one of the owners of Hudak's will maintain the transplants until they are ready to be planted near the reflecting pool in Taylor Park on May 23.

Attendees included Leanne Lessley, Norm Gale, Helen Lyons, Margie Larson,

Dale Powers, Rett Dumas, Charlotte Pedersen, Linda Wirts and Patricia New.

Two more workshops are scheduled for April 22 and 29 which will focus on seed planting. The final event is Gardening Night Out at 4 p.m. at St. Alban's Taylor Park on May 23rd. It is a town wide-event including a barbecue featuring hamburgers and hotdogs for everybody! For more information, please contact Kelly Wakefield at green.feet.gardening@gmail.com.



Nature's Clues to Planting Times

Phenology

Phenology is the study of periodic biological phenomena. Examples of phenological events include time of sprouting and flowering of plants in the spring, color changes

of plants in the fall, bird migration, insect hatches, and animal hibernation. These can be quite accurate indicators and many gardeners plan activities such as planting or

looking for insects based on these parallel events. Carl Linnaeus, the father of plant taxonomy, was one of the first to begin recording phenological observations.

VEGETABLES	
Plant peas	When forsythia & daffodil begin to bloom When you first hear spring peepers (frogs)
Direct seed outside: broccoli, Brussels sprouts, cabbage, garlic, kale, kohlrabi, onion sets and seeds, peas, potatoes, radish, rutabaga, shallots, spinach, and turnip	Crocus in bloom
Plant potatoes, beets, lettuce, spinach and carrots	When 1st dandelion blooms
Direct seed: spinach, radishes	"as soon as frost is out of ground"
Direct seed: beets and Swiss chard	Daffodils, early tulips, maple trees
Plant beets, carrots, cole crops, lettuce and spinach	When lilac is in first leaf/td
Direct seed: bush beans, sweet corn, pumpkin, and squash.	When apple trees, lilacs, and late tulips are in bloom
Plant beans, cucumber and squash	When lilac is full bloom When oaks/maples leaves size of mouse ear
Plant cucumber and squash	Lilac just past full bloom
Plant tomato sets	Lilac past full bloom, When lily-of-the-valley are in full bloom
Transplant eggplant, melon and peppers	When irises bloom
Plant corn	When apple blossoms start to fall New oak leaves size of mouse ear
Seed <u>fall</u> cabbage and broccoli	When mock oranges bloom
Seed morning glories	When maple leaves reach full size
Direct seed outdoors: pole beans, lima beans, cantaloupes, cucumbers, eggplants, peppers, and tomatoes	Bearded iris bloom and apple blossoms have fallen
Plant pepper and eggplant sets	Bearded Iris in bloom
FLOWERS & SHRUBS	
Prune Roses Fertilize lawn	Forsythia/daffodil bloom
Apply pre-emergent herbicide – crab grass germinates @ 55 degree soil	Before lilac bloom
Plant cool season flowers (pansies, snapdragons...)	When aspen and chokecherry trees leaf out
Plant tender vines, annuals, perennials	New grown on grapes and green ash
Plant perennials	Maple leaves unfurling
Plant cold tender annuals: marigolds, zinnia	Black locust/Vanhoutte spirea blooming
PESTS TO WATCH FOR	
Eastern tent caterpillars to hatch	When crab apples start to bloom
Gypsy moths hatch	When the shadbush flowers
Squash vine borer eggs are laid	When chicory flowers
Mexican bean beetle larvae hatch	When foxglove flowers open.
Japanese beetles arrive	When morning glory vines start to climb



Tips and Information

A Request for Help From Cornell University:

The **Brown Marmorated Stink Bug (BMSB)** is a newly invasive insect found throughout much of the United States. The insect is both an urban pest of homes and agricultural pest of tree fruit, sweet corn, vegetable and small fruit.

Cornell entomologists and a team of national scientists through SCRI support are working together to develop more sophisticated monitoring and management tools for this invasive insect. We are asking for your assistance toward this end.

This project plays an important role in our understanding the spread of invasive insects and most importantly, the future successful deployment of biological control efforts to manage the insect in urban and agricultural environments.

We are asking that you consider sending along the attached PDF with embedded links to your digital newsletter and posting the link of the 'National Citizen Science Project' in your Facebook page for residents of your county to post an image (for verification) and participate in the project.

The link to the Citizen Science BMSB website also provides to participants all of the information to take part in the National Citizen Science Brown Marmorated Stink Bug Project:

<http://blogs.cornell.edu/jentsch/a-national-march-madness-citizen-science-project-to-find-the-brown-marmorated-stink-bug-2017/>

Likewise, we are inviting all of the other 48 states also participate for us to best monitor the spread of the insect.

To do so we would like participants to verify the EDDMaps submission of the BMSB by requesting they submit a clear image of the specimen and post it into the EDDMaps link to upload the image for verification of BMSB presence in that township/county:

<http://www.eddmaps.org/west/report/insects.cfm>

If need be, clear images can also be submitted to:

bmsbproject@cornell.edu

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Lyme Disease 2017 Predications

Here's important information on this year's prediction on Lyme Disease. These are some ways to protect yourself, in addition to the updated information. The predictions are, it will only spread and be worse:

<http://bit.ly/2p2Zy8J>

UMass Home & Garden Information



There is a wealth of information on this website for Home Gardeners, from lawns to gardens, fruits, vegetables — and

more. <https://ag.umass.edu/resources/home-lawn-garden>

Useful Links to EMG Forms

Non-UVM EMG & Public Forms

[Reactive MG or Intern Status](#)

[Transfer From Another State](#)

[Help With Home Gardening Questions](#)

[Request for EMG - Organizations](#)

UVM EMG Forms

[Request for Volunteers by EMGs - One Time Project](#)

[EMG Project Proposal Form — Continuing Project](#)

[Personal Record Form - EMG Hours](#)

[2016 or 2017 EMG Volunteer Hours Form](#)

[2016 EMG Intern Hours Form](#)

Need to Keep Deer Away from Plants?

Try this: bird netting tucked just under and around your plants. It is there — just can't be seen. Deer won't come near it.





EMGs Working in Their Communities!



Champlain College's Wellness Fair, EMGs Are There

On Wednesday, February 8, 2017 Champlain College held their annual wellness fair for Faculty and Staff. Many students also dropped in to check it out.

There were a variety of vendors with tables from organic food that one could purchase to health clubs, massage, acupuncture, wellness programs, health vendors and the Master Gardeners. EMG's Leslie Carew (intern) and Karen Patno were able to snag 2 tables to showcase the program, add a laptop with the UVM Master Gardener website open and materials available to help gardeners.

They spoke to many faculty, students and staff about the Master Compost program,



Master Gardener program, gave gardening advice, and handed out materials about invasive species, planting times in our area,

when to start their seeds and more.

Numerous students asked questions about what is, a Master Gardener, what they do and how they can help in the community. There was much interest in the EMG program, how it works and volunteer opportunities available in the Chittenden County and outlying areas.

Leslie and Karen were able to introduce so many to the resources available for gardeners, create excitement for the upcoming gardening season and hopefully bring in a few new EMG's to the program.



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Invasives: page 14-15 Rita Langlais; Reed Grass: by Le.Loup.Gris - Own work; Buckthorn: by Franz Xaver - Own work; barberry: by de:Benutzer:Griensteidl - Own work & by H. Zell - Own work; Winged burning bush: by I, KENPEI; Wild parsnip: by Rasbak - Own work & By H. Zell - Own work. All (Own work) photos from Wikimedia with this license: [CC BY-SA 3.0 (<http://creativecommons.org/licenses/by-sa/3.0/>)], via Wikimedia Commons

Enter Our Contest!

We are looking for 10 words or less to describe the Master Gardener mission. This would be our “tag line,” or in technical jargon, our Unique Selling Proposition, or USP.

To get an idea of how USPs work, check out this link to *Entrepreneur's* website:

<https://www.entrepreneur.com/encyclopedia/unique-selling-proposition-usp>

We're looking for something catchy, original, instructive, clever... you get the picture.

Make it ours!

The winner receives a Master Gardener T-Shirt. How cool is that!

Send submissions to:

Kitty Werner kdwerner@uvm.edu

EMG's at the Vermont Flower Show in Essex, March 3–5



Submissions

If you would like to submit a story for this newsletter's future editions, send an email to Kitty Werner kdwerner@uvm.edu

We're looking for stories about EMGs at work, projects, gardening know-how, science-based information, and photos.