

**Yellowstone Master
Gardeners**
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YELLOWSTONE COUNTY MASTER GARDENER



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Newsletter

Volume 9 Issue 2

April, May, June 2020

~ Featured Master Gardener ~ Linda Brewer ~

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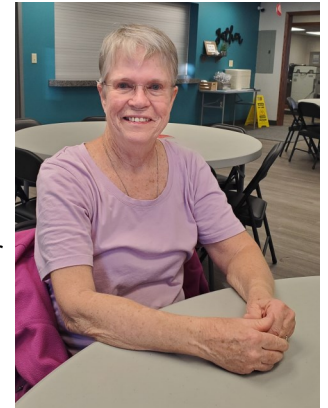
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Linda Brewer Adjusts to Montana

Interview by Bess Lovec

Linda and I survived Level 2 by a mutual strategy- laughter. We left one independent study session in a beautiful private home in Laurel more confused about material than when we arrived! We reminisced too about whatever happened to the folks that were there that day? Apparently some were as baffled by the content as we were. However, somehow we both managed to get through all three levels in 2015.

The challenges of gardening in Montana were her motivation to enroll in the Master Gardeners' course, that, and "meeting other skilled gardeners." She transferred here to opt for adventure when her employer, the U.S. Post Office, gave her the option. And challenging it was, after growing up in the gardener's dream state of North Carolina. Her heart still lingers in that beautiful state, as she immediately shares that her favorite tree is the Dogwood (*Cornus florida*) of North Carolina, whose bloom is the state flower. Incidentally, at least 12 species of dogwood trees and shrubs exist, with varying appearances.



Linda began gardening when helping her mom with flowers. She has taken that thread all the way to employment as a gardener at the Moss Mansion, plus maintaining a few large yards around Billings for Blake Nursery of Big Timber. The lineage did not come easily or quickly, though. She volunteered for almost a year at the Moss prior to being hired.



Consider some of the sage, professional advice from this veteran of the grounds, "You plant it and keep your fingers crossed." Upon further inquiry, though, her approach is not really that cavalier. She finds that her skills with horses translate to caring for growing plants. "The discipline of consistent care" for both animals and landscaping undergirds her continued success. Linda's a worker who does not take short cuts, hence her success.

She longs for the MG training in the future to involve more hands-on instruction. "I learn better from a person" (than a video), someone to demonstrate and to respond to immediate questions. I guiltily slump in my chair, since the onus of this improvement to our pro-

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gram logically falls to those who have completed all three levels. Can some of us procrastinate accepting responsibility for yet another year? Or can the program create an incentive enticing enough for experienced MGs to actually teach newcomers?

Her profound advice for new gardeners again inspires loud guffaws. "Take the Master Gardeners' course." Even after giving advice on how we do what we do, she's a devotee. Her goals for the upcoming season include raised garden beds created with apple boxes. First she must add false floors to the boxes. Also she has enrolled in the Naturalist program offered at the Audubon Center, spurred on by her giggling buddy. I learned about it from former Naturalist attendees Ann Guthals and Ann McKean. Will you join us noisy gals in the back of the room? Let's begin digging deeper.

What is Square Foot Gardening (SFG)?

Square foot gardening (SFG) is a method of creating small, orderly, and highly productive kitchen gardens. Developed by gardener, engineer, and efficiency expert Mel Bartholomew as a better way to grow more vegetables in less space, the idea was popularized in his books *Square Foot Gardening* (1981) and *All New Square Foot Gardening* (2006).

The basic system: a 6-inch-deep frame or raised bed is created, filled with a mixture of vermiculite, peat moss, and compost, and divided into a grid of 1-ft squares, which are managed individually. Each of the squares is planted with a different crop depending on the size and requirement of the crop. When a square is harvested, just add compost and plant a different crop within it, allowing for continual harvest. Since there are no paths between the squares, there is no wasted space, and the soil in the bed stays loose because you never step on it.

It is an almost fail-safe system for new gardeners, the elderly or disabled (SFG beds can be built at a raised height to make them more accessible), children, and people with limited yard space or little time, or who want a highly organized method to follow. Additionally, SFG can also be included in a garden plan that uses traditional planting methods.

Pros of SFG

High yields: Intensive planting means plentiful and continuous harvest from a small space.

Fast set-up: SFG is a quick way to start a new garden. Raised garden bed kits and raised garden soils can be purchased if you prefer not to create them from scratch. Place the raised bed anywhere (even over grass or pavement), fill, and start planting in just a few hours.

Ease of maintenance: Since the garden is small, regular tasks like planting, maintaining, and harvesting take less time, and watering can be done by hand.

Less weeding: An SFG bed filled with good soilless mix should not have seeds which means no weeds to pull in the first season. Closely planted crops also minimize weeds in the beds.

Increases biodiversity: Growing a variety of different crops close together is a form of companion planting which increases biodiversity and helps reduce pests and diseases.



Cons of SFG

High initial cost: The expense of building or buying even a small raised bed and filling it with soilless mix can be costly.

Cramped beds: SFG beds are not ideal for crops that take up a lot of space such as pumpkin, squash, or a big planting of sweet corn. Therefore, grow compact vegetables such as carrots and radishes in SFG beds and plant large crops in traditional rowed vegetable gardens.

Insufficient depth: The 6-inch-deep beds recommended in SFG might be too shallow for some plants. The solution: make your frame at least 12 inches deep to accommodate plants like carrots and potatoes.

Watering: Consider installing soaker hoses or a drip irrigation system since the soil in raised beds tends to dry out faster.

SFG Bottom Line

Many gardeners find vegetable gardening a relaxing activity, and there is satisfaction in eating something grown in your own backyard. SFG can be that successful backyard gardening method but before you decide if SFG is right for you, know your gardening style, needs, and preferences. Happy gardening!

Noteworthy: YCMGA has square foot demonstration gardens at the Metra. Check these links for information.

<http://aboutus.msuextension.org/localprogramhighlights/MasterGardener.html>

<http://yellowstone.msuextension.org/horticulture/mastergardener/mggallery/photogalleries/sqftgarden.html>

http://yellowstone.msuextension.org/horticulture/mastergardener/mggallery/photogalleries/Greenhouse_educationcenter.html

Submitted by ~ Suri Lunde



The Hidden Life in Soil

As Master Gardeners, we know all about soil texture, pH, cations, nutrient and water holding capacity and how all these things affect soil's ability to support the plant life above it. But there is a whole world of life in the soil which is mostly out of sight, and for most of us, out of mind. Apart from insects and other invertebrates which live in the soil, there is another form of life which plays a vital role in the health of the soil and the plants we love so much, and ultimately the health of every living thing including us. That life is fungi.

When we think of fungi we usually think of mushrooms, but these are only the fleeting fruiting bodies of mycelium, the vegetative body of fungus and the foundation of the food web, which forms a vast underground network and creates the rich soils we depend on for life. In fact, scientists believe that one of the largest (and oldest) single life forms on earth is a fungal network found on a mountain in Oregon. These fungal networks break down matter through decomposition and make nutrients available in soil. Without them, we would be buried in undecayed matter.

The three general types of fungi are parasitic, saprobic (decomposers) and the mycorrhizal and endophytic (mutualists). Powdery mildew is a good example of a parasitic fungus which breaks down a living host. The cultivated mushrooms that we consume are saprobic fungi which live on dead organic matter; however, the most amazing type of fungus is mycorrhizal, which forms a symbiotic relationship with plants. As the mycelium of mycorrhizal fungi grows through the soil, it forms connections with the roots of plants and supplies available water and nutrients such as phosphorus to the plants. In exchange, the mycelium receives photosynthates such as sugars which it needs but cannot produce. It even stores these carbohydrates (a form of carbon sequestration) and releases them back to the plants in times of need. And mycelia not only help one particular plant, but they form a bridge between plants which transfers chemical information and nutrients back and forth between the plants, often allowing stronger plants to direct more nutrients to weaker plants. Scientists believe that over 90% of all plants have a natural mycorrhizal relationship and as a result these plants are more resilient to fluctuations in weather and even to the effects of climate change.

Just as we benefit from a healthy microbiome in our gut to digest our food, so does mycelium. Mycelium is a powerful digestive membrane with the ability to break down toxins in our environment, but to maintain healthy soils full of life, we must be thoughtful about the substances we use in our gardens. While chemical fertilizers and pesticides offer rapid gratification, they can often weaken and even kill the fragile microbiome in the soil. This, in turn, creates a cycle of dependence on these chemicals. The way to restore the healthiest possible soil (and plants) is to mimic nature and use gentle natural organic materials which protect the microbiome while feeding the complex mycorrhizal networks which have evolved to nurture our plants and the vast community of life in the soil. This promotes a healthy balance in our gardens and our environment.

By understanding and supporting the complex hidden community of life in the soil which depends on the miracle of mycelium, we can intentionally and actively contribute to the resilience and sustainability of our own communities and our planet.

Submitted by ~ Ann McKean

Highlights from the Quarterly Association Meeting held March 13, 2020

Please check with Amy Grandpre about scheduled or rescheduled spring events.



The Yellowstone Room at the Metra is being torn down. Amy will look for a new location for the Master Gardener classes next year. We are OK till the end of March 2020. Brian said the Master Gardener classes are going great this year and he would like us to spread the word about them to keep the classes top of mind. Be sure to collect e-mails from potential students so Amy can remind them of upcoming classes and events.

-New Master Gardener Cups: Amy gave meeting attendees the new Master Gardeners coffee cups. All class Master Gardener students this year will receive one as well.

-New Ace Hardware greenhouse: Brian is working with the Managers of the new Ace Hardware opening soon. He is working with them on a possible discount for Master Gardeners. Sharon asked if we could do seminars there as well. Brian said Ace Hardware is sponsoring a sustainable vegetable garden and the berry garden at ZooMontana. Sherry stated that classes at places like Ace and Gainan's would further enhance the Master Gardener Program. When classes are held there, those patrons who come to shop will then stop to check out the classes that are in session. Many of them stay to listen.

-Zoo Project: Brian stated that he will be stepping down as president of the ZooMontana Botanical Society due to his accident. He will be president until June 2020.

-Metra Square Foot Garden and Rockery: Joann Glasser presented the Demo Garden info at the Master Garden 1 class. Brian stated she is also helping to get the benches installed at the rockery. Brian would like to see native plants in the rockery. AnnaMarie said she has some sedum to donate.

-Arbor Day: Sharon and AnnaMarie met to do the initial planning for the Arbor Day celebration booth. They are calling it the Birds and the Bees. Sheri Kisch will present the information on bees. AnnaMarie will be using her talent as an artist to paint posters as a visual display for the bird presentations. Sharon stated they will be helping the kids create pinecone bird feeders using pinecones, peanut butter and bird seeds. Someone brought up the possibility that some kids may have peanut/nut allergies. Sharon said that will be addressed. Amy suggested using jute and glue guns to put together the pinecone feeders. The Arbor Day celebration will be May 7, 2020 at North Park.

-Square Foot Garden Packets: Joann Glasser put together packets with seeds and instructions for people to use for a Square Foot Garden. We could hand them out at different venues.

-Montana Master Gardener Celebration 2020: Amy asked when we should call the presenters for the Celebration. Sharon said to wait due to the virus situation. We have the 4H building to use for the Celebration. The greenhouse could also be a venue. Brian said the planning committee will get together soon. A Vendor Row will be part of the Celebration.

-Reimbursement for Library Garden Series Class Speaker: Sherry asked if we could reimburse the Master Gardener speaker for classes done in April and May. Reimbursement would only be for items/plants given away at the classes. Sheri Fredericksen made a motion to approve the request, Cindy seconded. Motion carried.

ANOTHER WAY TO READ THE NEWSLETTER - WORD PRESS



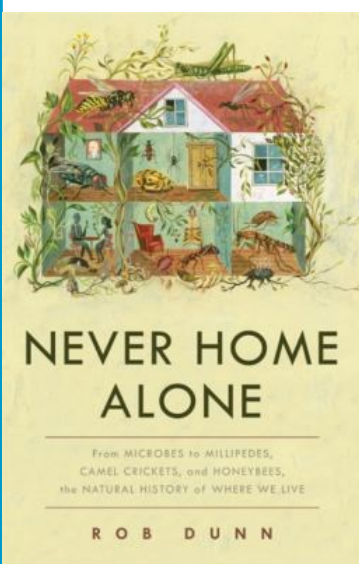
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www.yellowstonemastergardenernewsletter.wordpress.com

You can contact Corinna Sinclair if you have any questions. crean.bean@yahoo.com

With extra time for reading until our yards are ready to work, enjoy two book reviews this issue.

Never Home Alone: from microbes to millipedes, camel crickets and honeybees, the natural history of where we live. by Rob Dunn, Basic Books, 2018, \$28.



As *Homo indoorus*, we aspire to have clean homes that minimize our contact with microbes, insects, and tiny creatures. Through the ages, humans had much more exposure to microbes and tiny organisms. The overwhelming number of these are beneficial. The author, an ecologist, suggests we should spend more time outdoors in contact with microbes for our own well-being. No problem, we are gardeners. Our dogs and cats may be helpful too, for the organisms they bring into our homes. And maybe those bugs in the basement aren't so bad after all.

Learn more about the 200,000 microscopic species found coexisting with humans in our homes, and how they contribute to our health and well-being. During the corona virus pandemic, this could be a therapeutic read because it celebrates microbes from a research ecologist's point of view.

You can borrow from the Billings Public Library when it is open again (call number, 570 DUNN).

Submitted by ~ Jerry Dalton

(Also available as an audio book or ebook from Amazon.)



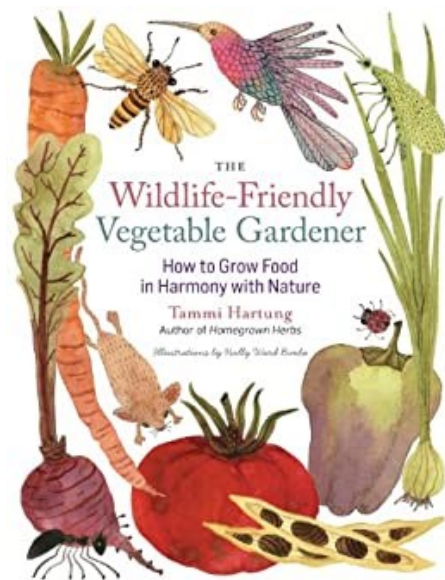
The Wildlife-Friendly Vegetable Gardener—How to Grow Food in Harmony with Nature

By Tammi Hartung

Tammi Hartung and her husband started Desert Canyon Farm in Colorado in 1996 to grow herbs and raise food for themselves. They are now a certified wildlife and botanical sanctuary and they often have field trips for students at their farm. Their goal is to co-exist with wildlife—meeting the needs of wildlife as well as their own needs. They attempt to provide protection, food, water and homesites for wildlife.

They now have over 20 years' experience trying to meet these goals. Some solutions have worked, like growing parsley for rabbits and deer to avoid losing lettuce and other crops. Some solutions have not worked, but have taught them much about nature. They have found that being wildlife-friendly can actually increase garden yields through better soil, more pollinators, and more beneficial predators helping with pest management.

This book lays out the steps one can follow to develop a garden that is supportive of wildlife. The first activity is the get to know the site—the land, its inhabitants, water sources, light and wind patterns. Tammi believes the most important first step to beginning the garden itself is to make sure there is healthy soil. She describes how to minimally disturb the soil, provide organic matter including by growing green manure, ensure a water source, and incorporate the use of mulch. Then she explains the importance of deciding where to position perennials to provide a structure to the garden and not, for example, overshadow vegetable crops. She suggests one research the site carefully because once in, the perennials are more difficult to move than annuals. Next she wants us to get to know pollinators (bees and other insects and animals) and beneficial predators (ladybugs, praying mantises, lacewings, spiders, wasps, etc.) on our land and to research how to encourage and support them to work in partnership with the gardener. Tammi actually



creates mini-habitats for wild animals to meet the goals outlined above and also to keep them from the main garden.

One of the most useful chapters is how to repel pests without using poisons—ironic in a book about encouraging wildlife. Strategies described include sharing crops, planting crops that distract animals from other crops, hand-picking pests, repelling them with aromatics, hosing the pests off plants, using hot pepper, mint, cinnamon, and wood ash to repel pests, trapping, scare tactics (like the Scaredy-Cat, a motion-activated spray device) and blocking access with netting, screens, fences, hoop-houses, and greenhouses.

The illustrations are delightful and the book is applicable to our growing conditions because the farm is in Colorado. The sidebars are very useful and I plan to use several suggestions going forward. There is also a quick reference chart for remedies at the end of the book.

The only disappointments were the plans in the last chapter for different kinds of gardens did not provide specific information about the plants in the plans and it seemed to me you would need quite a lot of property to implement all of Tammi's ideas, though one could still learn much from the book even for a smaller garden.



It took me a little while to catch the rhythm of this book, but once I did I began to realize what a plethora of information the author was presenting. And I have many ideas to try in the garden this year after finishing the book.

Submitted by ~ Ann Guthals

(Also available as an ebook from Amazon)



Finally, one last book that is beside my easy chair as I find time (note the subtitle):

The Suburban Micro-Farm: Modern Solutions for Busy People by Amy Stross.

Illustrated liberally with photographs, the book includes chapters on developing healthy soil, landscaping with edibles, and even permaculture. I'm pretty taken with the herb spiral project. Stross includes Life Hacks such as #1: Spend 15 minutes a day (to keep from being overwhelmed). While the author lives in Ohio, the information is applicable to our Montana growing conditions. She includes a variety of extenders for both shoulders of our short summer growing season and gives advice about no-till gardening techniques. Loaded with practical info!



Submitted by ~ Elizabeth Waddington

(available from Amazon)

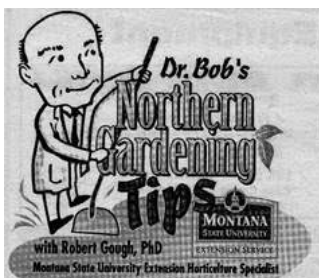
When I came out of the Art House Theater after seeing *Fantastic Fungi* this week, I wanted to run through the streets telling everyone that they **MUST** see this movie. *Fantastic Fungi* is a magical, mesmerizing film about, well, fungi, but the incredible time lapse photography and the knowledge and enthusiasm of the people in it and behind it make it so breathtaking and riveting that I wished I could have sat there and watched it three more times. The film takes the viewer on a journey underground and above, to reveal a world of

Movie Review of *Fantastic Fungi*

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Submitted by ~ Ann McKean



Do Black Walnut trees really poison other plants?

Yes. Many plants are killed when grown within the root spread of the black walnut tree. Butternut and Persian walnut trees grafted onto black walnut rootstocks give the same effect.

Black walnut trees contain a phytotoxin, juglone, which remains in the roots and is not secreted into the soil. For injury to occur the roots of the walnut must contact the roots of other plants growing nearby. Plants

closest to the walnut tree are usually injured first but plants up to 80 feet away can be injured because that is the average root spread of a mature black walnut tree. Even after the walnut tree is removed, juglone may remain in the dead roots until they decay.

The wilting caused by a plant's contact with juglone cannot be reversed or reduced by watering. Stunting, death, or wilting of the whole plant or only a part of it may occur. The side nearest to the walnut tree usually wilts first. Although most plants are affected, even other walnut trees, the problem is most severe on tomatoes, potatoes, and evergreens.

Note: I have a 30 foot Pinus Sylvestris (Scots Pine) that is very dead. It was planted about 15 feet from a Black walnut. (Not too smart, Corry) Dr. Bob is gone but his wisdom lives on.

Submitted by ~ Corry Mordeaux



The mission of the Yellowstone County Master Gardener Newsletter is to “educate and inform”, not to advocate or persuade. The Newsletter Editorial Board takes no position endorsing or opposing, approving or disapproving, any of the assertions or arguments in the contributed information. Information submitted to the Newsletter is for your interest only.

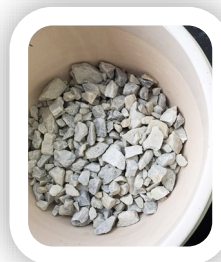
Garden Advice or Myth

Gardening Advice or Myth (GAoM): Weeding out fact from fiction

Below are a few gardening advice/myths that we often hear but may or may not be solidly rooted in science or actually work.

GAoM 1: Compost adds lots of nutrients to soil

It is true that adding sufficient compost into gardens makes plants grow well, which somehow implies that compost must be adding nutrients to our soil. In reality, compost has dismal nutrient levels: an N-P-K analysis of 1-1-1 or less. What compost actually does is help plants grow better in low nutrient environments by increasing the population of bacteria and fungi in the soil. These bacteria and fungi take the not-fully decomposed matter in the compost and convert them into specific nutrients the plants need to grow. So go ahead and apply lots of slow-made well-aged compost regularly and create a perfect habitat for the bacteria and fungi so that they do your fertilizing.



GAoM 2: Gravel in the bottom of containers helps drainage

It is standard practice when filling a container to place gravel stones or pieces of pot at the bottom ‘for drainage’. This actually restricts plant growth because it has less space, and also results in roots sitting in water. Water clings to soil particles until it is completely saturated, then drains away. A layer of gravel at the pot’s base only collects that water and shifts the pool of water higher up the pot, making the roots sit in it and cause root rot. As long as there is a hole at the bottom of the container, water will find its way out without the need of gravel.

GAoM 3: Always plant marigold in the garden

Many gardeners plant rows of marigold along their vegetable patch or as companion plant because marigold repel many garden pests and insects. Marigold helps reduce, not eliminate, nematodes (microscopic worms) in the garden. Although many nematodes are beneficial (e.g. they help kill June bugs in lawns), some nematodes invade plant roots and cause deformities in root crops like beets and carrots. Marigold acts as a host for nematodes: its natural nematicides kill the nematodes, and chemicals released by its roots prevent nematode eggs from hatching, thereby decreasing the nematode population. The marigold’s fragrance does not play any part in attracting or repelling nematode or any other pest – that is a myth.



GAoM 4: Watering plants in the afternoon sunlight burns leaves

The belief is that water acts as a magnifying glass, focusing the sun's rays as they hit the water, causing 'leaf burn'. If this is true, farmers would suffer massive losses after each daytime rainstorm! Using computer modeling and live tests, scientists have proven that water is not powerful enough to magnify the sun's rays to the required heat needed to burn the leaves on plants. Generally, the best time to water most outdoor plants is early in the morning but if watering in afternoon sunlight is the only option, it will not harm plants.

Conclusion: Let's promote truthful gardening wisdom and debunk gardening myths. By letting unequivocal gardening myths die, we all gain a better way to grow showy perennials, overflowing hanging baskets, and bountiful vegetables.

Submitted by ~ Suri Lunde

Recipe

Wild Mushroom Soup

This simple and healthy soup can be made from any combination of mushrooms available, but I like to use nutritious, affordable and easily available cremini mushrooms boosted by the big flavor of dried porcini. Serves 3-4

4 cups chicken, vegetable or mushroom broth
 1 cup hot water
 .5-2 oz. dried porcini mushrooms
 1 lb. fresh cremini mushrooms, stems on, sliced
 2-3 tablespoons butter
 1 large shallot, minced (or 1 small sweet onion)
 2 garlic cloves, minced
 1/3 cup Madeira (or Marsala or Sherry if you prefer)
 1 tablespoon flour
 3 sprigs fresh thyme
 4 tablespoons mascarpone or heavy cream, or more to taste
 Salt and freshly ground black pepper to taste



Rinse then soak the porcini mushrooms in the hot water for 30 minutes. Strain off all the liquid except the last little bit which will be gritty. Add the strained mushroom liquid to the chicken broth and bring mixture to a simmer. Finely chop the soaked porcini and reserve.

Melt the butter in a soup pot; add the fresh mushrooms in batches and sauté on medium high heat, turning occasionally until the mushrooms are beginning to brown. If you hear a squeaking sound when you stir, that is a good thing; it means they are browning and not boiling in their juice. Remove final batch and reserve. Add 1 tablespoon butter if necessary and cook the shallots or onions till soft and just beginning to caramelize on the edges. Add the minced garlic and stir for 30 seconds, then add Madeira to deglaze the fond and cook till reduced. Stir flour into mixture and add the reserved creminis, porcini, 2 thyme sprigs and hot stock, stirring to smooth. Add the salt and pepper and bring soup to boil, then lower heat and simmer for 20 to 30 minutes, stirring occasionally. Remove the thyme sprigs and discard. Taste and adjust salt and pepper. Pour into soup bowls, swirl in the mascarpone or cream and garnish with a sprinkle of fresh thyme or other herbs. Makes a lovely meal when served with a simple salad and a good baguette.

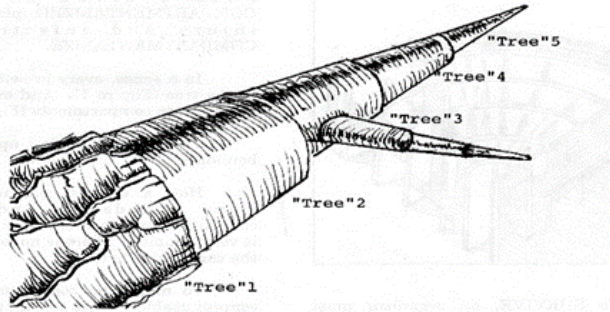
To adapt as a rich pasta sauce, remove a good spoonful of mushrooms and reserve, raise heat to reduce liquid by third to half and stir in 1/2 cup of heavy cream. Remove half of mixture, puree and mix back in. Adjust thickness by adding cream or slightly reducing. Serve over pasta topped with reserved mushrooms and sprinkle of herbs and shaved parmesan cheese.

Note: Mushrooms should not be eaten raw. Their tough cell walls are made of chitin (same as shrimp shells) and are largely indigestible. Cooking breaks down those cell walls making their nutrition more available. **Some raw mushrooms (including morels) can even make you sick.**

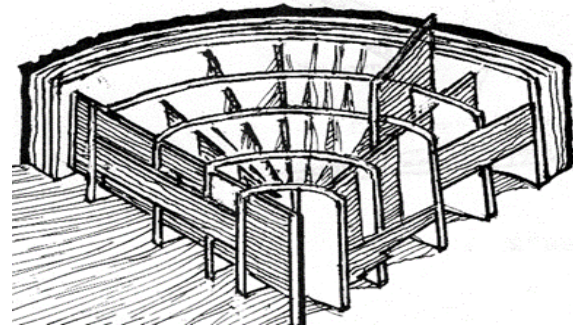
Submitted by ~ Ann McKean

Guess What? They do not! Wait a minute...I prune my tree and the wound heals up. Nope! Let me introduce you to the funny abbreviation "CODIT". This stands for Compartmentalization Of Decay In Trees. OK, this is pretty fuzzy. Let's dig a bit deeper.

We need to look at trees as being a tree within a tree. Each annual ring that you see in a cross section is actually a tree (Illus. 1 below).



Illus. 1

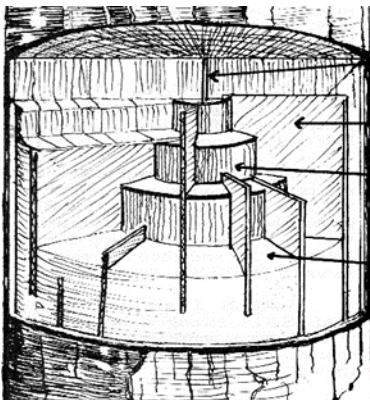


Illus. 2

If we look at a cross section of a tree, we see the annual rings (tree within a tree) but we also see ray cells from the center to the outside (Illus. 2 above).

Now hold those two pictures in your mind for a moment. As you well know, animals heal or restore a wound or infection to a healthy condition. Trees wall off or compartmentalize injured tissues. Trees have no healing abilities. They wall off or isolate the injury. With the previous pictures in mind, CODIT is based on "walls" ...top, bottom, and sides. These walls are in the growth rings and are penetrated by "tubes" (vessels or tracheids)

Some organisms and insects are able to continue to work through the walls. The cambium forms the most important barrier wall separating infection from new wood. This new wood is seen growing around a wound.



A good example of CODIT is provided by the reference for this article. "Another way to look at this situation is to show how it is similar to a battleship. A battleship is a very slow moving vehicle. It is highly compartmented. When it is hit the survival of the ship depends on the ability of the crew to close off the areas hit by a shell or torpedo. When the crew is very active and the ship has preset construction that permits effective walling off, the "injury" can be limited to a small space. But, if the crew is sluggish, and the preset construction of the ship is weak, then the injury could cause severe problems – the ship could sink".

The basis and diagrams for this article come from the National Arborist Association Home Study Course and is based on research conducted and published by Dr. Alex L. Shigo.

Submitted By ~ Corry Mordeaux

WHAT CAUSES BOLTING IN PLANTS?

I had planned to answer this question, plain and simply. Bolting in any plant is not plain or simple. I and others just want to know why the spinach is bolting at 2" tall and another year it doesn't bolt till July. And what's up with mums in full bloom in July?

"Bolting is the premature production of flowers, especially of vegetables usually triggered by environmental or cultivation factors" according to the Dictionary of Gardening.



That being said I found that many things rule bolting in plants. To start, it can be induced by plant hormones. Really! Gibberellin regulates different developmental processes that include germination, stem elongation, dormancy, flowering and flower development. When plants are exposed to chilly temperatures more GA's are produced. You can see how cold wet spring weather can start the process.

Bolting can sometimes occur from changes in day-length called photoperiodism. The critical day length for spinach is 13 hours. So when I planted seed in May, I would already be behind as the May day-length is at 14 hours. My row of spinach that was left to seed on purpose, then chopped up and turned under for mulch. It started growing last fall. It was very hardy - but- it was also very cold with a rainy spring that triggered the GA's which in turn started senescence. The plants already had small flowers forming at 2" high. You can find calendars and charts online that give day length and critical hours. Scientists have long thought it was the length of daylight that made differences in plants. They have now found that the amount of complete darkness is what makes the most difference.

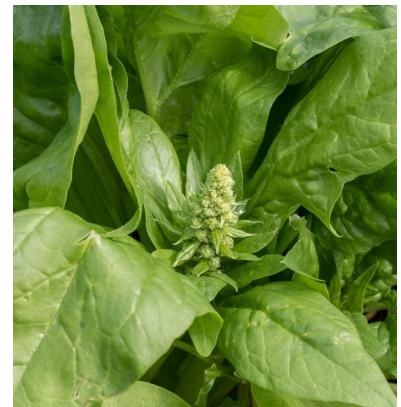
Take a deep breath. Ok, you have heard about planting by the moon. We now go into a whole other realm. Root crops are planted in the dark of the moon and above ground vegetables are to be planted in the light of the moon. The moon controls gravity, which influences soil and water. The Old Farmer's Almanac is a good source of information.

Senescence is the aging process of a plant or part of a plant. Trees are a good example of senescence because of the amount of leaves changing color and falling off, dying. Sometimes it's a natural process or it can be caused by environmental factors such as day length and season change. It can be triggered on only part of the plant due to pests, disease or drought. The plant can shut down the part that is diseased to save the whole plant tree and prevent disease from spreading. All natural senescing is regulated by hormones.

There is so much more about bolting for me to learn and tons of information out there. Using your favorite search engine, type in bolting, photoperiod, day-length, moon phases, or senescence. This is where level 2 & 3 come in laying the ground work. Dara Palmer gave me some good extension websites.

Submitted by ~ Sheri Kisch

<https://horticulture.oregonstate.edu/oregon-vegetables/spinach-0>
<https://extension.oregonstate.edu/news/tired-bolting-spinach-plant-while-soil-cool>
<https://web.extension.illinois.edu/veggies/spinach.cfm>

**Important Links**

See the Winter Newsletter for a full list of helpful websites.

Facebook: <https://www.facebook.com/ycmga>

Website <http://www.ycmgamt.com/>

http://www.msuextension.org/yellowstone/horticulture/master_gardener.html

POTENTILLA

Dasiphora fruticosa

A member of the rose family, potentilla, also called shrubby cinquefoil or bush cinquefoil, is native to Montana. The common name cinquefoil, meaning 'five leaves' (*cinq* means five, and *foil* means leaf), refers to the five leaflets found on many varieties. Genus name from Latin *potens* meaning powerful is in reference to the reputed medicinal properties of the plant.

A versatile addition to any landscape, potentilla shrubs can be planted in a container, used as hedging, massed along a slope, and as a specimen in a garden bed, mixed border, or rock garden. It is also a good choice for firescaping and erosion control. It is valued for its long bloom time, self-cleaning flowers, low maintenance, and carefree nature.

With saucer-shaped flowers available in shades of white, yellow, pink, orange or red, it has been used as an ornamental shrub for decades. The flowers are an important food source for butterflies, bees, wasps, flies, and beetles. The seeds are eaten by song birds and small mammals, which also seek shelter or build their nests in this shrub.

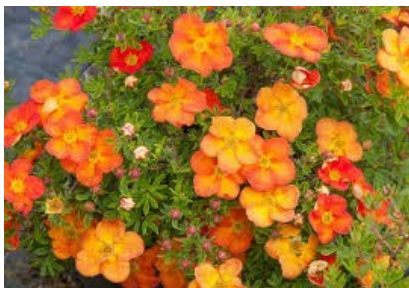
Favored for its reliability and resistance to deer, most pests, and diseases, potentilla is the go-to native shrub for landscapers and gardeners. Despite its exceptional winter hardiness, potentilla can suffer some winter dieback. In late winter or early spring before new growth emerges, cut out any dead or diseased wood and lightly prune the entire plant to shape as needed. To rejuvenate older specimens, cut plants back by a third every few years.



Personally, I am not an admirer of potentilla, perhaps because it is so ubiquitous. Just look around your neighborhood – potentilla is everywhere! It is so common that it has become unremarkable, a victim of its own popularity. Perhaps, if it were used less frequently by landscapers, I might develop a different stance.

Although I have been tempted to put the neglected potentilla shrubs I inherited out of their misery, I will provide them the rejuvenation they desperately need this Spring. If they thrive enough, maybe, just maybe, I might grow to like them a tiny bit. After all, potentilla has all the qualities of a plant that will free up my time so that I can enjoy my garden even more.

Submitted by ~ Suri Lunde



Or, at least let's add some color variety to our potentilla shrubs.

This event didn't disappoint attendees of the 2020 Seattle Flower Show...the theme appropriately "Spring Fever."

Those from our Master Gardener group attending included: Bob and Debbie Wicks, Sharon Wetsch, Brian Godfrey (friend Renee in photo), Mary Davis and Amy Grandpre.

Our adventures started with an extra special tour of the Amazon Spheres...whose waiting list to tour is over a year out. Talk about connections, David Yamanoha, who works incredible spheres (3 of greenhouse work-4 levels, each lovely single areas for do their thing in, ed by ex-plants and tures. Ab-stunning.!



Mary Davis's husband Ladd, has a son there and got us in. These them) are ultra-modern stations for Ama-ees. There are graced with or group workers to Amazon surround-otic water fea-solutely

The flower show with "Fleurs De Villes" mannequins decked out in style), sponsored by different florists in as thousands of flowers were used to make costumes, hats, accessories and carpets underneath.

itself was set off which consisted of flowers (Rose Bowl Float in the area. The details were amaz-

Did I mention the scents wafting about the building? Oh yeah, it was a heady experience coming from our frozen, bleak Montana, winter landscape to a virtual, full blown spring. The smell alone about made the trip worthwhile.

The landscape demonstrations were mind bending, with full grown blooming trees, ponds, waterfalls, streams and of course spring garden settings. Especially impressive was one home front garden display, with spring transplanting going on. It was as if the gardener working outside had just dashed in for a quick break. There was even a chicken coop with chickens gracing the landscape.

The vendors were the most I've seen at the event: three different areas and some amazing products and education to be had.



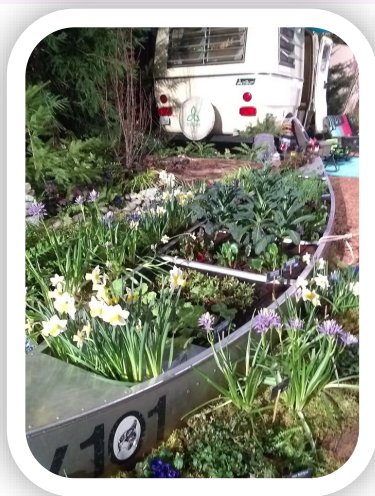
There were excellent options for classes offered, and many Do-It-Yourself projects to give participants hands on connections.



EXTENSION

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http://www.msueextension.org/yellowstone/horticulture/master_gardener.html



And of course, a trip to Seattle wouldn't be complete without a half hour wait for a cup of coffee at the original Starbucks and a walk about Pike's Place with a special treat from Piroshky's.

This event is such a great time, so much to see and learn, and I would encourage all our Master Gardeners to consider attending in the future, if possible.

Submitted by ~ Amy Grandpre

Announcements

Be sure to read the emails from Amy Grandpre to stay up-to-date on Master Gardener events and to learn about volunteer or paid opportunities.

This just in from Dara Palmer:

Master Gardeners Level 3 class, if it proceeds on schedule, will be August 14 & 15 in Bozeman. Class size is limited to 24. The cost is \$185, due by July 15th, 2020. For more information, contact Amy Grandpre for the application form and tentative schedule.

Currently all
classes and face to
face programming
are on hold.

However, our office
remains open 8 am - 5
pm and we will
continue to service our
community via phone
calls, emails, and other
appropriate means.

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You Probably know.... Nature nurtures

Especially in these uncertain times,

“trees, shrubs, grass, and flowering plants are integral to human health. Not only do they provide a place for kids and pets to play, they directly contribute to our mental and physical well-being.” To read the full length article, see:

<http://www.hortmag.com/gardeners/how-gardens-and-green-space-benefit-our-health>

Nurture your budding gardeners!



Hazel Waddington on a walk with Gram E to check the Meadowlark Courtyards.



Don't forget to plant for those you love.