YELLOWSTONE MASTER GARDENER NEWSLETTER

Volume 8 Issue 4 | October, November, December 2019

Yellowstone Master Gardeners
P.O. Box 35021
Billings, MT 59107

We want hear from you -Send your submissions for newsletter to ymastergardener@gmail.com by Dec. 15 for the next issue.

Editors:

- Elizabeth Waddington
- Sheri Kisch
- Ann Guthals
- Ann McKean
- Bess Lovec
- Donna Canino
- Alicia Weber
- Tracy L. Livingston
- Suri Lunde
- Maggie McBride
- Corinna Sinclair

Contributors:

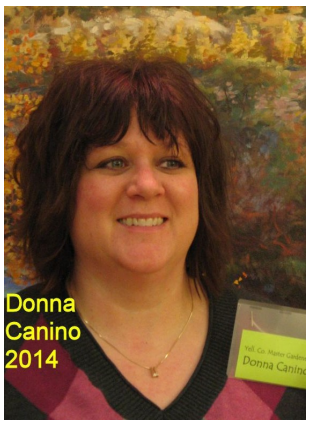
- Amy Grandpre
- Christine Smith
- Sheri Fredericksen

Inside this issue:

MG Interview……... 1
Common Milkweed …….... 2
Dried Arrangements...…… 3
Wooden Gardenware …….3
Putting the Garden to Bed...4
Book Review ....…… 5
Healthy By Design ……. .5
Recipe ……..……..6
Here's the Dirt ……6
Potatoes 2019 ……..6
Helping Bees ……7
Links ……..8
Leafcutter Bee Tour …….8-9
MG Regional Convention...10
Book Review ……...11
Sq. Ft. Garden Winners ….11

~ ~ Featured Master Gardener ~ ~

I am a level three master gardener who did not get started gardening until later in life. Growing up we did not have much of a garden and when we did it was rhubarb and a couple of vegetable plants, although we did do a lot of canning. It was my trips to Minnesota each summer to visit my grandparents where I was exposed to the world of growing. My grandfather grew a beautiful vegetable garden, trees that he grafted, the best compost set up and a long row of fragrant peonies that happens to be my favorite flower. After my grandfather's passing I was honored to be given his garden books, which contained some of his notes on gardening and grafting.



As a young adult I briefly lived on a scallop farm in Hokkaido, Japan. This northern island is rich with agriculture and is best known for milk cows, rice paddies and local gardens. I learned a lot about the way they preserved food in open crocks filled with brine, drying fish and kelp on large wooden pole racks set out in the sun for it to do its job and how to farm scallops from the ocean. I was asked to get some seeds for my hostess. Regular eggplant and giant pumpkin seeds were requested. I assume that there was some local competition going on amongst the gardeners as in the fall there would be large pumpkins set out on to the main highway at the entrance to each gardener's driveway for show and tell.

In my early thirties I finally began to grow a garden. I remember when I harvested and ate my first green bean I was hooked. Since then my gardening has evolved and I find myself wanting to grow a garden of only flowers that I can cut guilt free and fill my house with and leave my flower beds full of color. Each year on vacation I try to fit in a trip to a botanical garden.

Over the years I have collected ideas that have inspired me to create a Zen themed garden in my backyard. Last year I planned a special trip to Seattle to pick up a few outdoor statues to start off my Zen garden. I feel so lucky to have had all of those previous experiences growing up. It has helped me to appreciate and enjoy gardening and all of the possibilities it offers. Since I became a Master Gardener I have learned a lot and have met some really great gardeners. One of my favorite things about gardening is learning from others and the way it brings communities together.

~Submitted by Donna Canino

Asclepias syriaca (Common milkweed)

Common milkweed is a member of the Asclepiadaceae (milkweed) family.

It easily adapts to growing in a variety of soils from rocky to clay to sandy to chalky and is often found near the banks or flood plains of lakes, ponds, and waterways, in prairies, forest margins, roadsides, and waste places. In Montana it is often found at the edges of fields near ditches. In other words, it is prolific once it gets established. A single pod normally releases 50 – 100 seeds attached to a white, fluffy coma ("parachute") that allows wind dispersal.

Common milkweed is Nature's mega food market for insects. Over 450 insects are known to feed on some portion of the plant. Numerous insects are attracted to the nectar-laden flowers and it is not uncommon to see flies, beetles, ants, bees, wasps, and butterflies on the flowers at the same time. Milkweeds contain various levels of cardiac glycoside compounds which render the plants toxic to most insects and animals. (Humans should not ingest!) For some insects, the cardiac glycosides become a defense. They can store them in their tissue which renders them inedible or toxic to other animals. Monarch butterflies use this defense and birds leave them and the caterpillars alone. What the birds do not know is that northern monarchs feeding on common milkweed accumulate relatively little of the toxic compounds and probably would be edible.

Monarch butterflies can be helped by encouraging existing patches and planting new ones. It is the only plant the monarch caterpillar eats, and eggs are laid on the underside of its leaves. The plant grows readily from seed and spreads quickly by deep rhizomes. Because common milkweed can be weedy and difficult to remove, care should be used to establish the plant only in places where spread can be tolerated. If you want to add milkweed to your yard, propagation by cuttings of the tuberous rhizome is easy and reliable.

Less well-known human uses include historical Native American medicinal concoctions for everything from ringworm to temporary sterility and as a source for making strong fiber string. Milkweed is collected in the autumn after the leaves have begun to fall off, the stalks turn gray or tan, and the plant dries up. If the milkweed stems will break off at the ground, it's time to harvest. The dried stalks are then split open and the fibers are twisted into string. Breaking off as many stalks as possible (or burning) encourages resprouting in the spring.

Dried milkweed pods can add interesting lines and texture to a fall flower arrangement so take a walk and look for this prolific plant as Montana's vegetation dries and turns golden.

~ Submitted by Elizabeth Waddington

ANOTHER WAY TO READ THE NEWSLETTER - WORD PRESS

Enjoy the Yellowstone Master Gardener quarterly newsletter online! Share with friends and access recent editions in the archives. Find local interviews, interesting articles, tasty recipes, upcoming activities and opportunities, plant features and more. Save the URL in your favorites or bookmark it for quick and easy access from your computer, phone, or other connected device. Comment, share ideas, and encourage others to become a Master Gardener. www.yellowstonemastergardenernewsletter.wordpress.com

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

Dried Arrangements

Take a walk in the fall and you will discover the interesting dried forms of familiar plants along the trails and water's edge. These can be combined in vases or baskets to make long-lasting arrangements. Walk into an uncultivated field and you will likely have long enough stems for an arrangement in a bushel or large decorator basket. Use a laundry basket to keep plants upright and sharp scissors or pruner to cut stalks. Do ask permission before cutting on private property, though it is rare that a landowner will object. Be wary of roadside cutting if there is a chance of a weed control spraying program in the area. What a weed gives a floral arrangement is a sense of authenticity: "This really had a life somewhere that wasn't on purpose and hasn't had a human intervention," Emily Thompson, floral designer.

Without traveling, you can also use the spent flower stems from your backyard garden if you allow them to age gracefully instead of continuing to deadhead after late August. Especially attractive are coneflowers (yes, they keep their petals but turn a semi-sweet chocolate brown), bee balm (round ball shape), and sunflower varieties (no petals and seeds may drop, but the residual texture in the seed head with a triangular fringe is spectacular). Often you can find pampas grass or hops at fall farmers' markets.

Consider using dried grasses as filler much the way a florist uses ferns at the back of the arrangement to add height. Pick one or two significant stems to anchor your arrangement and repeat in another size elsewhere in the bouquet. Use vegetation of another size or density to fill in around the special stems. Do strip leaves that will be below the height of the container. A pleasing arrangement doesn't just happen: It's an artful blend of harmony, balance, and scale ... a mixture of foliage tints, tones, and shades plus — perhaps — an added selection of pods, cones, and grasses. We have an abundance of cattails and milkweed pods in our immediate area and they can add texture and height.

You can also add a single bloom or twig of colored leaves for emphasis. If you use foliage that is still alive, you will need to use a container that holds water and change it often. Always remember that the best arrangements are approximately twice the height and width of their containers. Experiment! Have fun!

~ Submitted by Elizabeth Waddington

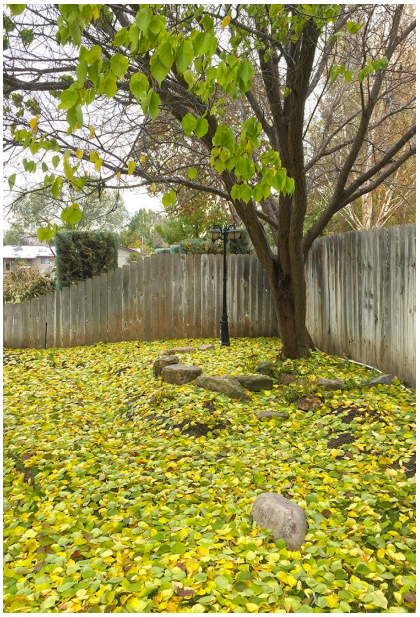
Wooden Gardenware Upkeep

Doesn't it irritate you when you pick up a tool or handle and get a sliver poke? Well I'll sand that off when I'm done with whatever. Somehow you just don't get around to it. Next time you notice a real crack in the handle forming. This could all be prevented with an annual fall cleanup and repair.

Scrape off all the soil and mud accumulated through the season and rinse or wipe clean and dry thoroughly. Then sand the entire wooden part of the wheelbarrow, pruners, trimmers, shovels, hoes, etc. Your final and most important treatment is to pour a little BOILED LINSEED OIL on a rag and rub the wooden parts thoroughly. Let hang till dry and the wood will be better than new next spring.

~Submitted by Sheri Kisch

Putting the Garden to Bed



Fall is the time for cleaning up garden beds and protecting perennial plants. Here are a few things I do to prepare my garden for winter.

Feed plants. To help plants prepare for winter, I limit fertilization but feed perennials by working in compost around the beds. The compost slowly breaks down in winter, releasing nutrients to the plants and improving the soil structure.

Water perennials. Perennials, trees, and shrubs should go into winter with ample moisture. Water them deeply in the morning a few times a month to get them through the cold months.

Remove annual plants and cut down perennials. After first frost, get rid of any dead flowers and plants. Remove any leaves infected with rust or powdery mildew so the spores do not overwinter in the soil. Do not compost plants or foliage that appear diseased. Pull annuals out by their roots; cut back perennials stems to 4 to 6 inches from the ground. I leave a few plants with interesting seed heads such as coneflowers, rudbeckia, and sunflowers to serve as winter interest in the snow and because their edible seeds provide vital winter food for birds.

Dig up tender bulbs and tubers like dahlias, cannas and caladiums. Store them over winter and replant in Spring.

Prepare the soil for Spring. Add soil amendments like manure, compost, and bone meal because these additions will have time to break down, thus enriching the soil and become biologically active.

Mulch. Apply thick layer of mulch around perennial plants, shrubs, and trees to help protect their roots in winter.

Clean and sharpen gardening tools. Wash and remove dirt, debris, and rust on tools. Sharpen hoes, shovels, and pruners.

Now that we have put the garden to bed, we can dream and plan for the next season as we flip through seed and plant catalogs!

~Submitted by Suri Lunde

The ultimate wisdom which deals with beginnings, remains locked in a seed. There it lies, the simplest fact of the universe and at the same time the one which calls faith rather than reason.

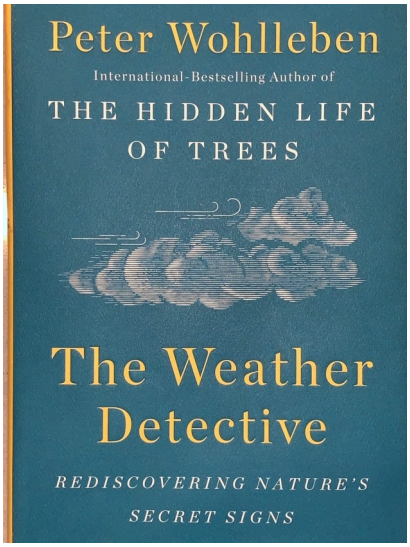
October is the fallen leaf, but it is also a wider horizon more clearly seen. It is the distant hills once more in sight, and the enduring constellations above them once again.

~ Hal Borland

The Weather Detective: Rediscovering Nature's Secret Signs

By: Peter Wohlleben

This fascinating little book does indeed have much information on using nature's signs to predict the weather, a useful skill for home gardeners. Among the indicators explored are wind patterns, clouds, flowers that close prior to storms, and bird songs. Then the book goes on to be a wealth of more information on many aspects of reading nature to help us garden. Even though the author is German, generally his information and advice translates well to our latitude and longitude.



The topics covered vary widely from basics to interesting unusual tidbits such as what elaiosomes are (a small fatty, sugary morsel attached to seeds to entice ants to carry both home, thus spreading seeds far and wide) or synanthropes (animals born wild but who thrive in close association to cultivated human environments like the Eurasian collared dove that showed up in our yard last year and stayed). One of my favorite stories is about the flower clock created by the eighteenth century Swedish natural scientist, Carl Linnaeus. He discovered that different flowers open their blooms at different times of the day, enabling him to create a flower "clock" with different types of flowers for each hour. Equally interesting was learning that birds often sing at specific times of the day, so that after one learns their calls, one could roughly know the time when a certain bird sings.

There are several chapters with decidedly practical advice and applications for gardeners: how to work in cooperation with rather than at war with nature, increasing soil health to increase garden health, adapting to climate change, in addition to accurately predicting the weather.

There are also chapters that increase our enjoyment of the natural world: using all of our senses not just the visual, and discovering new and interesting information about many aspects of nature.

As in his other books, Mr. Wohlleben writes in a flowing, readable manner that effectively translates up-to-date scientific information into laymen's terms. I hope you will soon read and enjoy The Weather Detective, so much more than a guide to predicting the weather.

~Review by Ann Guthals

Healthy By Design "Gardeners' Market.

Another successful year of Thursday evening markets at South Park!

The Healthy By Design Gardeners' Market is designed to bring healthy, fresh, local, and affordable fruits and vegetables to the community. The market is also a social meeting place to celebrate health and nutrition. Healthy By Design partnered with Billings Parks, Recreation, and Public Lands to bring the market to the South Park. http://www.healthybydesignyellowstone.org/gardeners-market/

Photo by: Christine Smith

PICKLED CARROTS

1 lb. carrots, peeled and sliced on the diagonal 1/8 thick
1 cup apple cider vinegar
2 tablespoons kosher salt
1 tablespoon mustard seeds
¼ cup sugar
1 tablespoon peppercorns
½ cup water

Place the prepared carrots in a clean resealable jar. Combine the vinegar, sugar, salt, peppercorns, mustard seed and water in a saucepan and bring to a boil. Pour immediately over the carrots. Clean the rim and jar and screw on lid and ring. Let cool to room temperature then refrigerate 2 hours (better after at least 24 hours) before serving. They can be stored up to 3 weeks (they won't last that long).

These are so good with many dishes or as a snack. My next batches I doubled and tripled.

~Submitted by Sheri Kisch

Here's the Dirt

Test your gardening knowledge with these fun facts.

1. The Bluebell flower was once used to make glue. T or F
2. Butterflies only taste and smell with their mouth and nose. T or F
3. Butterflies defecate and urinate five times a day. T or F
4. Broccoli is a flower. T or F

~Submitted by Donna Canino

Answers- 1. True; 2. False (Butterflies smell and taste with their feet); 3. False (Butterflies do not go to the bathroom. They sometimes release a mist if they have drunk too much fluid.); 4. True

Potatoes 2019

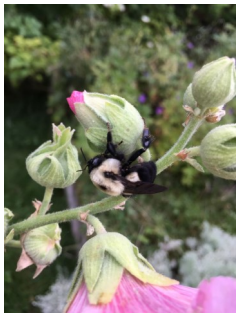
Half of my potatoes did not flower this year. I wondered if this would affect the production of potatoes in the ground, so I dug up one plant. There were plenty of potatoes, so having no flowers did not stop the plant making new potatoes.

The flowering potato plants produced clusters of "fruit" that resembled small green tomatoes. These are not edible and in fact are poisonous. Wikipedia states that these fruits form in years that are cooler and wetter than normal as the flowers have time to be pollinated and create the fruit. This was the first year I had seen these tomato-looking clusters on my potato plants.

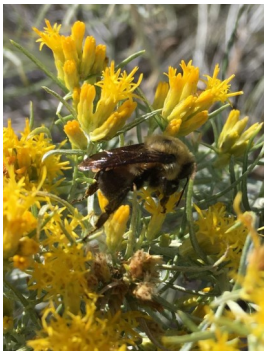
~Submitted by Ann Guthals

Helping Bees

Bees and other pollinators are in decline. In the summer 2019 issue of "Permaculture" magazine, there is an article entitled "Bee Roadzz" by Milly Carmichael that offers some hope. The following is a synopsis of that article.



In 2014 in England the Department for Environment, Food and Rural Affairs (DEFRA) wrote the 10-year National Pollinator Strategy to improve the state of bees and other pollinating insects and to monitor progress. Yet despite this focus on the pollinators' plight, bees are in trouble still. The reasons for the decline in population of honeybees and other bees are manifold and complex and include loss of habitat. "…in the UK, in the last 60-70 years we have lost 97% of wildflower meadows, 300,000 km. of established hedgerows and 80% of flower-rich chalk downland."



A group of people in the village of Marlborough decided to tackle this problem from a local perspective. Knowing that honeybees can travel up to 4 miles to find food and that their nearest village was 7 miles away, the people of Marlborough met with their neighboring village and set up a "bee road" between the 2 villages. They met with many different people in the town as well as farmers in the adjacent area. The first step was to work with existing resources, then re-assess and take the project further if successful. "Whatever can be done is encouraged, whether it is: reviewing garden plans and choosing more bee-friendly ones; sharing those plans with friends and neighbors; taking part in national monitoring schemes; reducing pesticide use; creating hibernation and nesting habitat for solitary bees; landowners surveying field margins for wildflowers and seeding the less rich areas…planting dozens of honeysuckle cuttings in the hedgerows; or letting a corner of a churchyard grow wilder." Farmers were encouraged to increase wildflowers in edges of fields as well as in meadows, re-introduce hedgerows, and plant flowering trees.

In addition to increasing food sources in the farmland between the towns, creating bee habitats in yards and gardens was encouraged. "There is growing evidence that allotments, domestic gardens and community green spaces in urban environments offer enormous potential for increasing pollinator populations and protecting genetic diversity."

Now more villages are becoming involved in creating bee roads. The Marlborough group's goal is to cover the country with "Bee Roadzz" so bees have habitat and food sources continuously available instead of islands of food and shelter surrounded by deserts without these resources.

In Montana our towns are many miles apart, so creating bee roads like these would be hard. But in urban areas we could work to make our yards and gardens more bee-friendly and also work with farmers and ranchers to increase food sources and habitats for bees similar to the English project.

~Submitted by Ann Guthals

MASTER GARDENER • MONTANA •

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.

Leafcutter Bee (Megachile rotundata) Tour

July 19, 2019 — Hosted by John Wold, Ashlawn Farms, Laurel, MT

Attendees: Sheri Fredericksen, Gordon Clark, Mary Davis, Kyle and Pat Neary, Nan Grant, Carolyn Jones, Sue and Marvin Carter

"Ashlawn Farms" was established in 1909 and homesteaded by John Wold's grandfather who moved west from Northwestern Minnesota. The name of the farm comes from the many ash trees located on the property. The family farms several crops, including some on dryland acres located south of Laurel. Leafcutter Bees (Bees) play an important role in the family's alfalfa seed business which started in 1986.

In early years, a harrow was used to try and open the alfalfa flowers to allow pollination to occur, however, it was a practice that was destructive to the plant. During the 1970's, farmers realized that bees worked extremely well to pollinate the alfalfa.

The alfalfa seed business is extremely weather dependent. Once the alfalfa plants begin budding, the Leafcutter Bee larvae, which have been stored in tubs during the winter, are placed into screened boxes. The temperature in the incubation room is gradually increased to about 85 degrees for the larvae to mature into swarming Bees. Once the Bees begin swarming, they are hungry and ready to go to work. Ideally, if the weather can maintain about 80-85 degrees, the Bees are released to begin pollination of the alfalfa.

The Bees have no typical "queen," however; the females do all of the work. The boxes containing the nesting holes are put into trailers and towed to locations where they are spaced out appropriately to pollinate the alfalfa. (The placement of the nesting boxes is due to the Bees nesting range of 300 feet.) In total there are approximately 3,000 nesting holes per box. The trays of mature Bees are transported to the field by pickup (in the evening or morning) when the temperature is cool, and placed into the top of the trailers which can house 18, 24 or 28 nesting boxes. The screens are then removed. Once the temperature begins to rise, the Bees begin to swarm as they leave the boxes. The Bees are very weak and the first thing they do is learn to fly and begin to feed to gain strength. Once they build up strength, the females then choose a nesting hole.

Once a female Bee claims a nesting hole, it is hers and will not be used by another female while the eggs are being laid in the hole. The female Bee lines the hole with "cuts" of leaf material from nearby plants creating a sort of cocoon for depositing the pollen and nectar and laying the egg. The female Bee opens the alfalfa blooms and sucks the nectar and gathers the pollen from several flowers on her belly and carries the pollen back to her nesting hole. (Since the females carry the pollen on their dry bellies, each flower they

USEFUL ONLINE LINKS

MASTER GARDENER

Yard and Garden MontGuides: https://store.msuextension.org/Departments/MontGuides-by-Category/AG/Yard-and-Garden.aspx
Submission of Samples: http://diagnostics.montana.edu/physical_sample_ submission.html
Montana State Master Gardener Facebook: http://www.facebook.com/ MTMastergardener
Yellowstone MG Newsletter Blog: www.yellowstonemastergardenernewsletter.wordpress.com
Ask An Expert: https://www.msuextension.org/
Yellowstone MG Newsletter Submissions: ymastergardener@gmail.com

YELLOWSTONE COUNTY MASTER GARDENER ASSOCIATION

Facebook: https://www.facebook.com/ycmga
Website: http://www.ycmgamt.com/
For information on the Association, Master Gardener projects and volunteer activities, calendar of upcoming events, minutes of past Board meetings, etc.
Amazon purchases: https://smile.amazon.com/
By using the portal and then typing in Yellowstone County Master Gardener Association, 0.5% of purchases made through this portal will be donated to the Association. You can even have an app link to connect you instantly to the sign-in page. Please use this link when making Amazon purchases!

enter to gather more pollen is pollinated by the pollen that has been carried from the previous bloom.) The female Bee scrapes the pollen off inside the nesting hole, then spits the nectar into the pollen creating a "paste like" food source for the larvae to feed on prior to "diapause".[1/] When enough pollen and nectar has been collected, she then lays the egg and seals it with cuts of leaf material to protect the egg from predators. Female Bees literally wear their wings off flying into and out of the nesting holes and have a life span of about 5-6 weeks; the males only about 2 weeks once they fertilize the females.

Approximately 6 gallons of Bees per acre are required to adequately pollinate the alfalfa blooms. Great care is taken to ensure the alfalfa is not over pollinated as it can have a detrimental effect to the alfalfa seed yield.

Once pollination is complete, the boxes containing the larvae are retrieved from the field and placed into the incubation room (at a temperature of 50-55 degrees) for the following year.[3/] The alfalfa plant is sprayed with a chemical defoliator causing the plant to dehydrate so that it is ready to harvest. One pound of alfalfa seeds equals approximately 250,000 seeds. Depending on the amount of alfalfa acres, the family's total yield can vary year to year.

Leafcutter Bees have a gentle nature and although they have a stinger, would only sting if threatened. A sting is comparable to a mosquito bite. The bee got its renown for their superior capability with pollinating alfalfa.

I "bee-lieve" a good time was had by all and the tour was very informative.

~ Submitted by Sheri Fredericksen

Footnotes

[1/] Diapause is a predetermined period of dormancy, meaning it's genetically programmed and involved adaptive physiological changes, i.e., from the time the larvae are placed into a cool temperature to the time the incubation room temperature is increased to make the larvae mature.

[2/] Approximately 10,000 bees equals one pound.

[3/] The larvae will remain in diapause until the incubation room temperature is increased the following summer to begin the metamorphosis cycle into mature Leafcutter Bees.

2019 Master Gardener Regional Convention—Rexburg, ID, June 28th

This was the second year that Sharon, Brian and Amy took on the Rexburg convention. And as before, the educational opportunities were exceptional and the campus gorgeous.

Out of the 14 educational offerings, 6 could be selected for the day's classes. From these Amy chose: Backpacking for Wildflowers; Herbs in Your Landscape;; Nature, A Prescription You Cannot Fill in a Pharmacy; Spiders got you Spooked; Want to Have Your Own Nursery?; and From Root Cellars to Walipinis

Here are the highlight of the things learned from these sessions:

-Instead of baggies of wet paper towels, in "Backpacking for Wildflowers" we learned how to make our own Tissue Culture Media. This simplifies plant collecting enormously. With these light weight, plastic test tubes, filled with about an inch of media, you can now take much smaller cuttings of plant starts, and easily preserve them, for days if needed. Here's the recipe:

Add 4 cups of distilled water to a saucepan
Dissolve 1 tsp. MiracleGro into solution
Dissolve ¼ cup cane sugar into solution
Add 1 tsp. Dip-N-Grow liquid rooting hormone to solution
Add 1 Tab. Agar
Heat until it boils, stir
Remove from heat and dispense 15-20 mL into plastic, lidded tubes

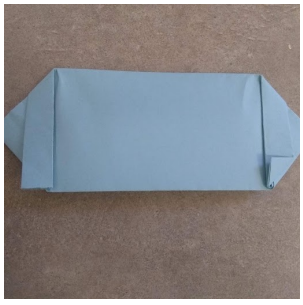
-In "Herbs in Your Landscape," it was most impressive to see how many herbs are really quite beautiful as ornamentals…and why not use them as features in our landscapes. Some that were impressive were using certain Lavender varieties (Twickle Purple & Phenomenal) for short hedging; Lime mint was not only a lovely variety, but what a wonderful addition to those summer time Mojito's; the Oregano variety Dittany of Crete has a fuzzy leaf and is a most beautiful plant; Pineapple sage actually has some lovely, ornamental, red flowers.

-We learned in "Nature, A Prescription You Cannot Fill in a Pharmacy," that in today's world, nature is literally a prescription to improve health. Dr. Robert Zarr, in 2017, founded Park Rx America, so that health professionals could write park prescriptions for patients of all ages suffering with obesity, mental health issues, hypertension and Type 2 diabetes. It turns out humans need green space for stress relief, to lessen depression and anxiety, for lowering blood pressure, and on and on. **Biophilia** also called BET suggests that humans possess an innate tendency to seek connections with nature and other forms of life…we need it. This is something we probably all know, but this somehow really drove the point home.

-"Spiders got you Spooked," was just plain fun and interesting. The big message was that the Aggressive House Spider (Hobo) is no longer on the venomous bite list. It was a spider whose identity had been grossly misrepresented.

-Inspiration was given through "Want to Have Your Own Nursery," to take our Metra greenhouse and put it to work, even though it would only be for those months that wouldn't require heating…May to Oct. An opportunity for vertical garden growing and blessing our communities food services with vegetables such as pole beans, winter squash and tomatoes, as well as demonstrate to the public the value of vertical growing in small spaces.

-Then finally Walipini Construction. First off, besides being fun to say, what's that all about. For curiosity's sake a closer look had to be invoked. Turns out this is a wonderful greenhouse structure that takes on much of the same dynamics as an earth house. The greenhouse floor is dug into the ground and walls are bermed with soil to create an underground greenhouse. A bit of work for sure, but what benefits to have the consistency of soil warmth through winter, and only a roof to maintain.



And for a bonus, we were taught how to make a Linnaeus seed packet…yes we are talking Carolus (Carl) Linnaeus here. Was so awesome to have in our hands the very packet he used when collecting seeds.

As Master Gardeners, you all can take in this most awesome resource for advancing your horticulture education. Do consider coming along in 2020.

~Submitted by Amy Grandpre

MONTANA STATE UNIVERSITY EXTENSION

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

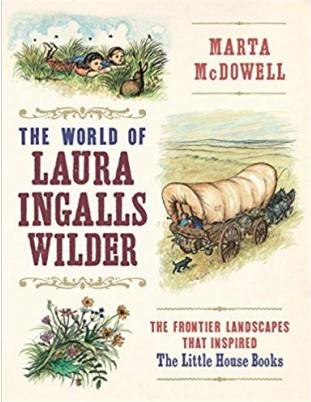
Amy Grandpre
Yellowstone County Urban Horticulture Asst.
County Courthouse
217 N 27th Street, Room 106, P.O. Box 35021
Billings, MT 59107
Phone: 406.256.2821
Fax: 406.256.2825
Email: agrandpre@co.yellowstone.mt.gov

Toby Day, Extension Horticulture Specialist
Montana State University, Dept. of Plant Sciences & Plant Pathology
P.O. Box 173140,
312 Leon Johnson Hall
Bozeman, MT 59717-3140
Phone: 406.994.6523
Fax: 406.994.1848
Email: toby.day@montana.edu

Dara Palmer, Montana Master Gardener Coordinator
Email: dara.palmer@montana.edu
Cell 406-994-2120

The World of Laura Ingalls Wilder: The Frontier Landscapes that Inspired The Little House Books

By: Marta McDowell.



Did you grow up traveling the prairies and woods with the Ingalls family? I got lost in Laura's adventures as she grew up and never paid any attention to the details about the flora in the different locations. This book uses many passages from Laura Ingalls Wilder's books to chronicle the agricultural practices, home gardens, seasonal chores, and daily activities the Ingalls family engaged in to grow, harvest, and preserve food for storage.

The book makes use of archival territory and plat maps of locations the Ingalls family lived from Wisconsin to Minnesota to North Dakota and more. It also verifies many events and observations Laura weaves into her stories by including newspaper articles, agriculture circulars and historical photos. Plants mentioned in her stories are often depicted by not only original Garth Williams line drawings, but also period botanical illustrations and contemporary photographs.

While McDowell's book is not a how-to-garden directive, it does show the deep connection to the seasons and land that beloved children's author and pioneer Laura Ingalls Wilder shared subtly through her childhood stories. It is satisfying to see that even with changes to our climate and the urbanization of Laura's frontier landscapes that many of the plant species continue to thrive.

~ Review by Elizabeth Waddington

This year (our ninth), the Square Foot Garden competition was great, plus we added another box for a total of 8 competition beds. You all did such a wonderful job and I thank each of you for putting in the extra time to compete this year! ~ Amy Grandpre

Box 1: Charlie Hendricks
Box 2: Ron & Joyce Hendricks
Box 3: Corry Mordeaux & Gloria Ervin
Box 4: Rick Shotwell
Box 5: Brian Godfrey
Box 6: Rebecca Starr
Box 7: Roy Wahl
Box 8: Marilyn Lockwood

Thank you judges: Debbie Werholz, Mary Davis, Rosemary Power.

First place Box 4: Rick Shotwell, - $50
Second Place Box 3: Charlie Hendricks - $25
Third Place Box 6: Rebecca Starr - $10