



GROUNDDED

A Quarterly publication of WSUE
Grant/Adams Master Gardeners

Newsletter August 2016
Volume 5 Number 3

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Local Seed Library Program Funded

Grant-Adams Area Master Gardeners (MGs) Deana Riley and Pat McAfee recently announced that their project was selected for the 2016 Ellen A'Key grant, which will be used to cultivate a seed lending library and demonstration garden! The A'Key Grant is awarded annually by the King County Master Gardener Foundation to a rural Washington State MG organization that is seen as financially needier than their urban counterparts.

INSIDE THIS ISSUE

Local Seed Library Program Funded

Questions, Questions, Questions

Plant Clinics

Evil Root Weevil

Flower Thrips

Organic Matter and Soil Health

Pest Sightings

Training Opportunity – Plant Identification

“The Ellen A'Key Memorial Grant program was developed to foster innovation and creativity, stimulate problem solving and creative solutions, encourage a sense of unity and community among all Master Gardeners in the state, and make possible programs that otherwise might struggle or never be able to progress beyond the planning stage.” The \$1500 grant will fund the Seed Library, which will be located at the Ephrata Library, and a demonstration garden, which will be at the Ephrata Community Garden location.

Several activities are planned for this project centered around the gardening tasks of “planning, planting, growing and harvesting”. And, we’re not talking about harvesting just yummy fruits and vegetables . . . it’s the seed we are after! Vegetable seeds will be “lent” to area gardeners with the understanding that some seed will be saved and returned to the library. The garden will demonstrate the process of allowing plants to go to seed and then harvesting the seed.

The opportunities for learning, growing, and sharing are far reaching. The seed library couldn’t be at a better site of “learning” in this community. The Ephrata Library was looking for a program that could build ties with adults in the community. The Seed Library is ideal for this project, and, since the library brings a diverse audience from all over the community, it is an ideal venue.

The seed library and demonstration garden will include educational opportunities to bring Washington State University (WSU) facts and science-based data into our community where words like GMO, Organic, Natural, and cross-pollinated are misunderstood by the backyard gardener, as well as to integrate Integrated Pest Management (IPM) practices. Other educational and fun activities will be planned, such as for seed swaps, harvest homecomings, and tastings.

Participants in the seed library will be encouraged to understand and appreciate “seed”, while also urged to share their bounty with local food banks, senior centers and others in need. Events held throughout the year will be designed to engage children and adults while demonstrating proper seed growing and harvesting techniques, as well as the savings benefits of growing your own produce and living healthier lives.



Deana and Pat have started the process of acquiring seeds and supplies for the Seed Library and are prepping the garden. A kickoff event is planned for January 2017.

The Grant-Adams MGs are honored and proud to begin their journey of developing *gardeners for life . . . one seed at a time*,

thanks to the Ellen A’Key Memorial Grant.

Questions, Questions, Questions . . . and lots of good answers

Did you know that the first Master Gardener program was founded in 1972 by Washington State University Cooperative Extension in the greater Seattle area to meet a high demand for urban horticulture and gardening advice? The program has since grown to offer Master Gardener programs in all 50 states as well as in eight Canadian provinces.

And did you also know that 27 Master Gardeners and interns currently serve here in Grant-Adams Counties under the auspices of the WSU Extension office to help you with your home gardening questions? They have been trained by WSU extension and local industry specialists in subjects such as taxonomy, plant pathology, soil health, entomology, cultural growing requirements, sustainable gardening, nuisance wildlife management, and integrated pest management. They take additional educational classes every year to expand their knowledge and keep current on gardening issues.



How do you find them? They’re available to answer your questions using science-based research at plant clinics located throughout the two counties (see times and locations listed below) as well as through a year-round email helpline (ga.mgvolunteers@wsu.edu). They also speak at public events, write articles for publications, and partner with other community programs, such as the Grant County Conservation District in hosting the annual Eco-Gardening Symposium each spring.

Master Gardeners receive many questions covering a gamut of concerns and issues related to home gardening. Here are examples of questions that were recently asked and answered at the online clinic:

Question	Answer
<p><i>What is wrong with the leaves on my/cherry/plum/apricot tree?" (And then some kind of description of what appears to be wrong.)</i></p>	<p>It may be <i>coryneum blight</i>. It makes little round brown spots in the leaves that turn to holes. Lesions also show up on twigs and fruit. It's a fungus disease more common with wet and rainy weather.</p>
<p><i>For instance, "the leaves are full of holes and there are</i></p>	<p>We have had a lot of wet weather this year. Almost always it's necessary for the client to bring a sample to the clinic that shows the damage. Dry weather slows the disease down.</p>

brown cuts on the branches and the fruit doesn't look good."

We can't do much about the weather but the problem may have been caused by how the client waters. Keeping the tree canopy dry helps mitigate the disease. Don't water overhead. Cut out twigs and buds that show the damage. Prune the tree so that there is good air circulation among limbs. Make sure to remove and destroy all affected leaves and twigs under the trees.

WSU Extension Agent Mike Bush's [Organic Pest and Disease Management for Home Fruit Trees and Bushes](#) is an excellent source of information. The bulletin is WSU Extension EM066E. It's found online.

"Why are the bottoms of my tomatoes turning brown?"

The tomato is not absorbing enough calcium. The condition is usually called blossom end rot. There are a number of reasons why it happens, most of which have to do with growing conditions that reduce the fruit's ability to take up enough calcium.

Some of the causes are Inconsistent watering, root damage, cold temps and cold soil when planted, excessive heat, too much nitrogen in the soil, too many salts in the soil, or the soil is too acidic or alkaline (there's a pH imbalance).

You can't reverse the damage on the tomatoes once the brown spot shows, but you can help the plant by making sure the plant is staying damp during very hot spells, giving it some fertilizer high in potassium, and next year following some suggestions that give the plant a better start. (WSU Extension Marianne Ophardt's article Blossom End Rot on Tomatoes written for the Tri-City Herald is what Master Gardeners would recommend to the client:

<http://ext100.wsu.edu/gardentips/2009/07/10/blossom-end-rot-on-tomatoes/>

"We're thinking about ordering Bald Cypress seeds online to plant in our landscape. Is that a good idea?"

Typically, seeds should be prepared by the vendor (information on cold stratification was included in the answer). However, if they are not, refer to the following description attached:

Bald cypress characteristics:

<http://www.pnwplants.wsu.edu/PlantDisplay.aspx?PlantID=446>.

I assume you would be able to perform the function. However, please consider NOT planting bald cypress because it requires a lot of water. Remember, we live in a desert and cypress trees do best near swamps or wet areas along riparian zones or creeks or streams. Find plants that are adapted to our area. You can check the Master Gardener website:

http://ext100.wsu.edu/grant-adams/gardening/master_gardeners/

Master Gardener Plant Clinics

WSU Master Gardener volunteers are available to address your home gardening questions. You may contact a WSU Master Gardener volunteer with your home gardening questions through the following e-mail address: ga.mgvolunteers@ad.wsu.edu. Messages sent to this address will be answered by the Master Gardener volunteers in a timely manner. For face-to-face contact, or if you have a plant or insect sample that you would like to have identified, please see the Master Gardener volunteers at one of the following locations:

- Ephrata Farmers Market, Grant County Courthouse, 35 C St. NW: First, second and third Saturdays, June through September, 8 am–Noon
- Moses Lake Farmers Market, McCosh Park - Dogwood Street Side: May through September, 9 am–Noon
- Othello Ace Hardware, 420 E. Main: Second Saturday, May through September, 9 am–Noon
- WSU Grant-Adams Extension Office 1525 E. Wheeler Rd., Moses Lake: Second & Fourth Mondays, April through October, 9 am–Noon

The Evil Root Weevil . . . #by Barbara Guillard

At this time of the year, nothing in the garden irritates me more than root weevil damage on the roses, peonies, lilac, and sedum plants. The damage is caused by an insect that does its work at night. I have to admit that I have only been motivated enough a couple of times over the years to go out after dark with a flashlight and catch the adult beetle at its work, but this year I am determined to learn a little more . . . and maybe do more about it than complain. Root weevils are found throughout the United States, but it seems to me back when we had colder winters in the Columbia Basin that there was less root weevil damage.

The insects are blackish, snout-nosed, and a quarter to a half-inch long. The white larvae develop in the soil around the roots of the plant and feed on plant roots, and the root crown.



The adult strawberry root weevil beetle (about half the length of a penny).



The larvae (¼ " up to ½"). Photos are from Insects: PNW Handbook

Mostly, we see weevil damage but not the insect because the beetles come out of the soil at the bottom of the plant after dark and climb the plants. If you look at the trunk of an affected shrub 1/2 inch below the soil in the summer, you may see larval damage from girdling of the stem, creating a saw dusty appearance around the bottom of the plant. The adult insects overwinter in leaf litter and mulch and come out again in the late spring to feed on the leaves, laying their eggs in the soil or on the crowns of strawberries in June or July.

There are a large number of root weevil species and a large number of plants species that they feed on. The strawberry root weevil pictured here also feeds on rhododendrons and mint. Other common varieties of root weevil in our area are Black Vine weevil, Obscure weevil, Woods weevil, Arborvitae weevil, and Fuller Rose weevil. According to Sharon Collman, WSU Extension in Snohomish, Washington, at least 14 different species are found in the Pacific Northwest. Root weevils and the adult beetles attack over 100 plant species, including blueberries. However, they don't attack all the members of a plant species.



Miniature roses appear quite vulnerable to root weevil attacks. The rose beside the miniature rose is *Europeana*, which is not nearly as affected. (Guillard photo)

I learned some useful terms while looking for information on plants that might not be affected by root weevil infestation: Genotypic refers to cultivars that are not affected by climate, location, or horticultural practice and phenotypic refers to cultivars that are resistant to disease/insects in one location and not another. One of my goals is to find more cultivars of plants that are resistant to root weevils (phenotypic).

In my garden, strawberries, lilac, peony, euonymus, some varieties of rose, and some varieties of sedum have been ravaged this year. Although the damage to plants from root weevil is commonly considered just an aesthetic problem (It looks bad!), a large infestation will kill strawberry plants. It appears that the miniature roses in my garden are quite vulnerable. The roses are planted in several beds and are different cultivars, but all look badly damaged. On the west side of the



Damage on "Double Delight" roses (Photo by Barbara Guillard)



Damage on lilac (Photo by Barbara Guillard)

state, in their different climates, gardeners can choose from

rhododendron varieties that are less susceptible to the weevil. I'm looking for roses that might be more resistant to the weevil.

There are some good organic gardening practices that can be used to mitigate weevil damage. Adult beetles can be shaken off the branches of plants at night (they fall off and "play dead"), collected, and removed to the garbage.



Damage on strawberries (Guillard photo)

The weevils do not fly, so laying something under the plant to catch the insect might help you gather them up. The soil around the plant can be scratched up and kept clear of litter and mulch. (I'm not sure I would try this with blueberries for fear of damaging roots.) Another idea to protect vulnerable plants like strawberries and blueberries is to grow them in pots in which the soil is changed on a regular basis (at least once a year for strawberries) or checked often for signs of the weevil damage. Blueberries, especially if you don't have a lot of shrubs, might be happier in pots anyway because the plants grown in our climate and soil need extra care for other reasons.

Another recommendation for controlling the weevil on strawberries is to cut off all the leaves in the autumn, exposing the crowns to the sun and removing the dead plants and clutter from the beds. For even more control, you can remove all the strawberry plants from the area, till the soil, and the next spring plant something not affected by weevils in that place (crop rotation!). However, you may not have the space to do that or, like me, have strawberries planted in flower beds along with other plants. I'm not willing to completely change the garden bed. Unfortunately, I feel the same about the roses and peonies in their beds planted among other flowers.

Many organic gardeners have used diatomaceous earth to discourage root weevils around shrubs. They dust the soil at the base of infested plants with diatomaceous earth. In bad infestations, the lower stems and undersides of leaves can also be dusted with diatomaceous earth. Another method of control shown on the Ed Hume Seeds website involves using a product like Tanglefoot, which is painted around the stem(s) of the plant. This is really a sticky situation if you're trying to use it on roses.

Some parasitic nematodes can also be applied in the spring. *Heterohabditis bacteriophora* nematodes come in trays of 50 million suspended in a liquid. Their application is rather complicated but articulated clearly in an article by A. J. Andrews, given in the references at the end of this article. However, complete eradication of the weevil is apparently hard to accomplish using any of the methods.

Pesticides have not proven to have been too effective either. It seems to depend on knowing the type of root weevil beetle and perhaps the cultivar of the plant, things you might need to know before you can find an effective insecticide. There's no effective poison listed for the larvae. However, WSU does recommend pesticides like neem oil (and others) to control the weevils on ornamental plants like lilac and rhododendron. I might try it on my roses too. The pesticides recommended by WSU will be found in the current edition of the Pacific Northwest Insect Management Handbook. You can access it online. Just be aware that any insecticide you use is probably killing other insects in your flower beds.

Finally, the alternative is to look for plants to buy that aren't as vulnerable to root weevils as the miniature roses are. So far, I haven't had any luck finding cultivars of roses rated for resistance to root weevil. I just have my experience with miniature roses. I won't be taking out the 25-year-old lilac or the old standard roses that I have become fond of and that don't seem to suffer so much damage. But I will have to take some other action. Maybe I'll get out there at 2:30 am and scare a few more evil root weevil beetles.

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Root Weevil Control on Rhododendrons, A.L. Antonelli and R.L. Campbell; WSU Bulletin eb0970 cru.cahe.wsu.edu/CEPublications/eb09070e/eb0970e/pdf. Contains List of Rhododendrons that appear more resistant to root weevils. This bulletin appears to be the basis for all the other articles referenced in this article.

Editor's Note: The following article was published in the Tri-City Herald, Kennewick, WA on July 6, 2012, and is as timely now as it was then. The author has graciously given Grant-Adams MGs permission to reprint it here.

Flower Thrips - A New Worry in the Garden . . . by Marianne C. Ophardt, WSU Extension

A new worry in the garden . . . western flower thrips. We've talked before about these tiny little insects that damage rose buds with their feeding, but a variety of other garden flowers are also being attacked. Thrips have rasping mouth parts that they use to tear tender flower tissues and then slurp up the fluids that leak out. Their feeding causes streaks and blotches on flower petals. When severe, flowers may even fail to open.

While western flower thrips are commonly found on roses, they can also attack almost any type of flower and are known to attack over 200 species



Magnified photo of a thrip. Photo courtesy of .Jenny.tfrec.wsu.ed



of plants in 62 different families. They favor white to yellow flowers, and their preferred hosts in the garden are roses, mums, geraniums, impatiens, fuchsias, marigolds, pansies, petunias, and carnations.

Thrips are minute, just one-fifth of an inch in length, with slender bodies, making it difficult to detect their presence. The easiest way to check is to tap flowers over a white piece of paper and look for their yellow to tan fast moving little bodies. I had been blaming the weather for the failure of my geranium flowers to fully open until I used this method to check for thrips. Aha! Thrips were the culprits. They're also causing streaks on the petals of my miniature daylilies. I know they must also be feeding in other flowers, but they aren't causing the severe damage seen on my geraniums, roses, and daylilies.

Before we discuss control, let me point out some things you should know about these flower feeders:

1. Thrips populations can build up quickly. Female thrips don't need a male to reproduce and each is capable of laying 300 eggs in plant tissues. The eggs which hatch in a few days to a few weeks (in cooler weather) mature in two weeks, allowing for multiple generations during the growing season.
2. Thrips are active flyers and are capable of moving from plant to plant.
3. Because of the damage they cause to numerous agricultural food and fiber crops and because they have multiple generations during the season, thrips have built up a resistance to many insecticides. Scientists have also found that the outer covering on thrip bodies blocks the penetration of insecticides. Add to this the fact that thrips are often feeding within buds or at the base of petals where they're protected from insecticide applications.

Obviously controlling flower thrips isn't going to be easy. It's made more complex by the fact that most pesticides that might be effective in controlling thrips are also likely to be toxic to bees visiting the flowers.

An integrated approach to managing thrips is advised. This consists of:

- Pruning out infested flowers and buds and removing them from the garden.
- Getting rid of weeds in and around the garden.
- Avoiding lush, vigorous plant growth that results from excessive fertilization or heavy pruning.
- Using blue, white, or yellow sticky traps to scout and trap thrips.
- Wetting plant surfaces with sprinkler irrigation to deter thrips.
- Encouraging beneficial insects, such as lady beetles and lacewings which feed on thrips.
- Using the least toxic insecticides recommended for thrips control and following label directions.

Insecticidal soaps and summer oils can provide a quick knockdown of some of the thrips, but repeat applications will be needed. Apply insecticide materials directly to buds and flowers. Because these materials may damage flowers, you should test several flowers first. Only treat badly infested plants where the thrips damage is too severe to be tolerated.

Organic Matter - A Reflection of Soil Health . . . *By Mark Amara*

Organic matter is measured in percent and having a higher amount is often used as an indicator about whether soil condition is improving or degrading. Having an abundance of organic matter at the surface or in the top few inches of soil can help reduce wind and water erosion so common in eastern Washington.

Our Grant and Adams counties soils are relatively light textured sands - sandy loams - silt loams, so leaving sufficient amounts of crop residues, compost and/or cover (crops) on the soil surface or mixed into it can help reduce erosion and runoff and also helps minimize nutrient loss through leaching. If soils are not held together well with organic matter, they lose nutrients more quickly, especially in our warm climate where supplemental watering is frequent. In these situations, soils without adequate plant cover or organic matter



Photo by Mary Cogger, WSU Extension. WSU FS123E

have a higher tendency to blow or run off, and are more prone to erosion, crusting, and may even not take up water very well. Columbia Basin soils are naturally low in organic matter, having 1% or less in the natural state. Increasing organic matter is a long term proposition but with a regular planned program, it can be increased, rather than decreased. Even increasing organic matter by one or 2 percent can greatly improve soil quality, soil health, and can help maintain or improve fertile plant environments and yields.

Tilling destroys organic matter because it accelerates decomposition and spreads it throughout the tillage zone so regular additions of organic matter are recommended for yards and gardens. If there are excessive amounts of plant vegetation, enhancing decomposition is a good practice but finding a balance is difficult since crops vary so much.

Organic matter applications should be made every year to help maintain healthy soils and improve soil fertility and tilth. Adding and incorporating copious amounts of organic matter can be done in innumerable ways using yard waste like lawn clippings and leaves, as long as they have not been treated with pesticides, adding commercial fertilizer, planting cover crops, spreading crop residues, applying manure, compost, adding straw or other plant materials or planting perennial grasses and legumes. Soil testing should include a test for organic matter and for pH (acidity or alkalinity) measurements to determine if trends are up or down. Maintaining proper pH helps keep microorganisms active as an aid to help organic matter decomposition.

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<http://extension.psu.edu/plants/crops/soil-management/soil-quality/how-to-increase-organic-matter-in-soil>.

Organic Matter - Plus or Minus For Plant Health?

Organic matter is the darker portion of the top soil made up of live and dead plant and animal materials, and decomposing and decomposed materials. Fully decomposed organic matter is called humus, while the active part of the material is called detritus. Aside from the technical jargon, what people really need to know is that this material is good for the soil because it helps hold the soil together, allows water to drain through it more slowly and uniformly, and allows gases like oxygen and carbon dioxide to move through it. All active (decomposing) organic matter parts help maintain or improve soil fertility because as these

materials break down they release plant nutrients. Humus, the end product of the decomposition process, helps build soil structure, improve tilth and cation exchange capacity (which relates to its ability to hold onto and supply essential plant nutrients), and helps give soils their darker color.

The more organic matter present in the top foot of soil, or especially in the top two inches of soil, the better. That is where most roots that feed on organic matter are concentrated, where microorganisms that aid in decomposition of plant residues thrive, and where water enters and percolates through. Organic matter is a temperature moderator and adds carbon, which promotes the growth of beneficial bacteria that help protect and provide for healthy plants. Organic matter is a source of plant food, so having more of it available for plants is a plus.

Pest Sightings

Pest	Information	Contact
Carpenter Ants Build Nests	<p>Hot weather has brought out a flush of carpenter ant queens. These huge ants are often found snooping around structures after (or even before) they have dropped their wings. The presence of these ants is not a serious concern as the large majority of them are unsuccessful in starting new colonies.</p> <p>Information is available in the WSU publication "Carpenter Ants: Their Biology and Control" at http://cru.cahe.wsu.edu/CEPublications/eb0818/eb0818.pdf</p> <p>Also see WSU PestSense, http://pestsense.cahnrs.wsu.edu/Home/PestsenseHome.aspx in the "Wood Destroying Pests" section</p>	<p>Dave Pehling WSU Extension Snohomish Co., Everett, WA. 98208 425-338-2400</p> <p>http://snohomish.wsu.edu http://gardening.wsu.edu/</p>
Viburnum Beetle, Not Beatle!	<p>As Viburnum leaves unfold and mature, look for the Viburnum Leaf Beetle. Larvae would have been present April through June. WSU has a factsheet to help you identify its damage, larval stages and adults. http://pubs.wpdev.cahnrs.wsu.edu/pubs/fs202e/</p> <p>HortSense has recommendations up for management options. http://hortsense.cahnrs.wsu.edu/Public/FactsheetWeb.aspx?ProblemId=767</p> <p>It has been found in King, Snohomish, Skagit and Whatcom counties. If you find it or suspect it in other counties, please contact Todd Murray. We'd like to track it as it establishes in the state.</p>	<p>Todd A. Murray Director, Agricultural and Natural Resources Extension Program Unit</p> <p>Washington State Univ. PO Box 646248, Pullman, WA 99164-6248</p> <p>509-335-8744 / Fax: 509-335-2926 tmurray@wsu.edu</p>
New Rabbit and Hare Management	<p>There is a bumper crop of cottontails in some areas this year. If populations remain high this fall, plants in yards and gardens can be damaged over winter.</p> <p>For information on dealing with rabbits and hares, see the new WSU Fact Sheet, FS231E "Rabbit & Hare Management in Washington Home Yards & Gardens (Home Garden Series)"</p>	<p>Dave Pehling WSU Extension Snohomish Co., Everett, WA 98208 425-338-2400</p> <p>http://snohomish.wsu.edu http://gardening.wsu.edu/</p>
	<p>The publication can be read on line or the PDF can be downloaded from http://pubs.wpdev.cahnrs.wsu.edu/pubs/fs231e/</p>	

Controlling Mosquitos

For many reasons, working to reduce mosquito populations is a good idea, please see WSU Pestsense for management options for mosquito abatement:

<http://pestsense.cahnrs.wsu.edu/Public/FactsheetWebPrint.aspx?ProblemId=804>

See also the WSU Puyallup publication

<https://puyallup.wsu.edu/plantclinic/wp-content/uploads/sites/408/2015/02/PLS-121-Pest-Management-for-Prevention-and-Control-of-Mosquitoes-with-Special-Attention-to-West-Nile-Virus.pdf>

The WSU Puyallup Plant & Insect Diagnostic Lab has been fielding a few calls about Zika virus and mosquitos recently as more reports of the disease (so far all travel-associated) have been showing up in Washington news. There is no evidence of either *Aedes aegypti* or *Aedes albopictus* (the two known mosquito vectors of Zika virus) here in WA .

Both CDC's and DOH's Zika websites will have the most current information on what's going on with Zika in the US and the number of cases we're seeing in WA. Those websites are at:

<http://www.cdc.gov/zika/>

<http://www.doh.wa.gov/YouandYourFamily/IllnessandDisease/ZikaVirus>

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