GROUNDED

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Returning to our roots . . . *by Deana Riley*

For centuries gardeners and farmers have been saving seeds. It was common for pioneers to carry seeds across the Great Plains as families ventured to new lands. Seeds have been found in the tombs of great Egyptian pharaohs, beside their jewels, gold, and wine and have helped sustain the economies of many Native American cultures for thousands of years. Seeds have journeyed millions of miles and survived some of the most brutal conditions imaginable and yet, still they grow and bring joy to gardeners' faces when the first cotyledons (emerging leaflets) appear, followed by true leaves. Ah, joy and excitement erupt when the first blooms appear and continue throughout the growing season to harvest time.

Every year about this time, seed catalogs start arriving and gardeners dream about the juicy new tomato variety that's splashed on the front page. We make decisions on whether to replant that Empress bean that was so productive last year or try the Haricot Tarbais bean. Then some of us get carried away with visions of Cocozella Di Napoli squash, herbs and flowers. It doesn't take long for our mouths to start watering for fresh vegetables and our vases to cry out for color. But why do we turn to the seed catalogs? Seed saving has been done for so many years and yet today we barely consider it. Or is it we rarely talk about it?

When I started the concept of a seed library, I'd only saved seed from an obvious plant or two in my yard and occasionally been rewarded with some volunteers here and there (yes, I kind of count that as seed saving . . . don't judge). As I delved into seed libraries, I quickly learned there are many skills needed to preserve viable seeds for future planting and generations. But more importantly, a whole new world of words appeared including open-pollinated, hybrid, F1, organic, heirloom, STDs (that's Seed Transmitted Diseases), fermentation, vernalization, winnowing, threshing and as you can see the list goes on and on. Then there are the tools needed: seed sieves, envelopes, drying screens, and water baths. This is probably why that little packet of seeds costs around $3-$6. But don't be overwhelmed!

The Ephrata Seed Library opened January 28, 2017, at the Ephrata Public Library. It was such an extraordinary day! Now you can check-out seeds for free and learn all about growing and saving them.

Inside This Issue

On opening day, the Grant-Adams Master Gardeners (MGs) were poised at tables ready for the unexpected. And what happened was truly unexpected. The grand opening was scheduled to start at noon, ending at 3 pm. I had jotted down some notes to be sure I wouldn't miss anything in the opening comments. Ha! That never happened. By 11:40, there were about a dozen people already swapping seed and checking out the seed library inventory. By noon, the room was filled with members of the community interested in seed saving, and the afternoon didn't slow down!

We had approximately 50 participants buzzing around, telling stories about their seed, learning about seeds, varieties, and what a seed library was. I was absolutely thrilled to see the energy and excitement in the room. There is simply only one way to explain it: absolute joy! The stories people were sharing about seed, traditions, great-grandparents, varieties they loved and *all* the thank yous for bringing this event to our community was, well, one of the greatest days of my life!

Who knew there would be so much interest in a seed library? With the opening of the seed library, the MGs has begun hosting educational gardening events on seed growing, saving, soils, etc. The first in this series was called "On Your Mark," presented by Master Gardener Kris Nesse, and will include three more events: "Ready, Set, and Grow." The first monthly event was held Feb 11, with eight participants registered, and a whopping 25 who showed up! Ages ranged from toddlers to seniors. We kept bringing in more and more chairs. On each second Saturday from February to October, fun and educational events are planned, including a "Kids Garden Too", "Hey Herb!", "Ready or Not (seed saving)?"

If you're interested in seed saving, or even opening a seed library, do it! I'd encourage you to try this part of gardening. Yes, there are challenges and learning curves and just like with plants, that's part of the fun of gardening. But you don't give up on gardening when a plant doesn't perform as expected. It takes trial and error. It takes perseverance. It also takes a lot of learning and practice to grow good food and that good food provides an ample supply of adapted, viable seed that just someday might be the foundation of food for generations to come.

Editor's Note: The following article reprinted with permission from the author

Ephrata Seed Library Opens to Rave Reviews . . . *by Lauren McLaughlin, Reporter, Grant County Journal newspaper*

Seed swapping began at the Ephrata Library on January 28, 2017. More than 30 people showed up for the opening event to exchange seeds and to find out more about the Seed Library. The Seed Library is a collaborative effort between the Grant-Adams Master Gardeners, the Ephrata Library and the North Central Regional Library System to create a catalog of seeds. It includes a wide variety of vegetables, flowers, and herbs — and divides seeds into beginner, intermediate and advanced levels. It's housed in the Ephrata Library and will be open from noon to 2 pm on the second and fourth Tuesday of every month, and from 10 am to noon on the first and third Thursday.

Master Gardener Annual Plant Sale and Raffle

The annual Master Gardener plant sale will take center stage at the Moses Lake Farmers Market in McCosh Park on May 6 from 8 am to 1 pm, as the primary fundraiser for the Master Gardener Foundation of Grant-Adams Counties. Funds support Master Gardener horticultural and environmental advocacy activities throughout the year, including demonstration gardens, presentations and classes, an annual public symposium, seed library, plus educational materials and references for plant clinics.

A variety of reasonably priced annual and perennial plants will be available. Need tomatoes? Numerous varieties, both heirloom and hybrid, most from organic seed, will be offered at this once-a-year event. Customers will find other seasonal vegetables, herbs, annual flowers, locally adapted perennial trees, shrubs, flowers, and grasses. Master gardeners will be on hand to discuss plant care and planting information.

Carol and George Roper, Mary Lou Hobson and Janet Larson helped out buyers at last year's plant sale

A raffle of donated items will be held at this event, which also supports Master Gardener programs. This year's items include a Washington State University (WSU) canopy, a patio bench and table, a turning composter, at least two surprise baskets, and wine and coffee.

Edris Herodes & Mona Kaiser staffed the raffle ticket table

Ticket buyers may select the package(s) they want to win! Seven winners will be drawn. Tickets ($1 each) are available for purchase from any Grant – Adams MG in advance or at the plant sale, with the drawing taking place at noon on May 6 at McCosh Park. You do not need to be present to win!

Third Annual Columbia Basin Eco-Gardening Symposium

The Grant-Adams Area Master Gardeners and Grant County Conservation District have partnered up to jointly sponsor a gardening symposium Saturday, April 22, 2017, from 9 am-1 pm at the Columbia Basin Technical Skills Center, 900 E Yonezawa Blvd, Moses Lake.

Based on results and recommendations from the second annual symposium held last year, the partners are hosting another half-day event this year focused on vegetable gardening. Speakers, door prizes, a vendor marketplace, and refreshments are provided free of charge. Space is limited so applicants are encouraged to pre-register as soon as possible through the Grant County Conservation District.

Grant County Conservation District and
WSU Grant-Adams Master Gardener Program
3rd Annual Columbia Basin
Eco-Gardening Symposium
Focusing on Vegetable Gardening

April 22, 2017

9 AM to 1 PM

Technical Skills Center, 900 E Yonezawa Blvd, Moses Lake, Washington

There is no fee to attend this event. Refreshments will be provided. Door prizes will be awarded.

Pre-Registration is appreciated (space is limited)

Register online: www.columbiabasincds.org
By phone: 509-765-9618
In person or by mail:
Grant County Conservation District
1107 S. Juniper Dr.
Moses Lake, WA 98837

Grant-Adams Master Gardeners Select 2016 MG of the Year

Once a year Grant-Adams MGs recognize an individual(s) for extraordinary contributions to the program. A selection committee made up of at least two volunteers bases the decision on community involvement, educational impact, promotion of the WSU MG Program and its goals, commitment, leadership, and sometimes legacy.

Barbara Guilland (left) presents, the 2016 Master Gardener of the Year Award to Deana Riley.

This process relies on nominations from members. Program data (volunteer hours) also informs the selection decision. 2016 was unique. Eloquent and persuasive nominations were received. But, in an out-of –the-ordinary occurrence, several recommendations were for a single individual. Nominations said things like:

- "this individual epitomizes each of the (selection) elements"
- "she has taken on a leadership role"
- "she is very involved with the community"
- she is committed to our MG Program success and the success of each project she's involved with"
- "her leadership, and work, will continue to connect the MG program with the community"
- "her efforts have been tireless'.

Not only were the number of nominations unique, but all suggested something unprecedented. These nominations were for an intern! Interns are newly trained individuals who volunteer 50 hours or more per year toward earning certification as an official Master Gardener.

All our newly minted MGs are extraordinary. As some of the older MGs say, they're all 'keepers.' The 2016 honoree jumped into the MG world with curiosity, tenacity, and creativity. Her efforts included:

- clinic work at both a farmers market and on-line
- hard work at a demonstration garden
- committed program support at meetings, including giving a presentation
- hands-on efforts and thought to make the plant sale better
- volunteering for other committee work
- leadership and incredible effort in launching a new MG initiative, the Seed Library

Yes, this intern invested almost 200 hours of amazing effort in 2016. The Grant-Adams MG program is grateful, and happy to honor Deana Riley as the 2016 Master Gardener of the Year.

Editor's Note: The following article is reprinted here with permission of the author. The topic is applicable to anyone who gardens.

Cover Crop Best Bet Is Monoculture, Not Mixture . . . *By Andrew McGuire, WSU Extension Grant County Ag Systems Regional Specialist, Grant County, Washington*

Cover crops are great. If I thought I could get away with it, I would just grow cover crops in my garden. They protect the soil, feed microbes, build soil structure, add root channels, and support beneficial insects. I think they look cool too.

When cover crop mixtures got popular a few years ago, I got excited and grew a 17-species mix. It looked really cool, I mean, diverse, with all sorts of seeds that became all sorts of plants. I took pictures, showed my kids, and even had a neighborhood open garden event! (Well, maybe not that last one.) Then I grew

Can you see the 17 species in this cover crop mix?

some vegetables after the cover crop. They did just okay. I wanted it to be the best tomato/squash/cucumber/lettuce crop ever, but I could not tell the difference between these vegetables and those I had grown after many previous un-biodiverse cover crops. Recent research results may explain this.

Research thus far has consistently found that cover crop polycultures are not necessarily better than cover crop monocultures. This is now reaffirmed by a large study, done in Pennsylvania, published in 2016 (Finney et al 2016). The study had 18 treatments replicated four times. Eight species were grown as monocultures. Seven 4-species mixes and two 8-species mixes were the polyculture treatments, and they included a no cover crop check treatment. All this was planted in August for two years (different field each year).

Cool looking cover crop cocktail growing. Photo: A. McGuire.

The big idea behind cover crop mixtures is that the increased biodiversity will result in increased productivity, increased ecosystem services, or both. The Finney group tested both hypotheses. They found that the mixtures produced less biomass than the best monocultures (here, canola and cereal rye). They also found that mixtures did not provide increased ecosystem services (here, weed control, nitrogen scavenging, nitrogen storage, and effect on following crop) over the best monocultures. These findings are related. Finney et al. found that most of the ecosystem services which we want cover crops to provide are related to biomass production. Because a few of the monocultures produced the most biomass, they also provided more services. From this they concluded that "a mixture may not be necessary" and "a single cover crop species may be sufficient and more economical than a mixture."

Mixtures do have one advantage: they can provide more services (multi-functionality) than a monoculture. However, in mixtures, the level of individual services provided is less than with a monoculture. For example, cereal rye is a great weed suppressor, but it does not fix nitrogen. If we mix hairy vetch, which fixes nitrogen from the air (an ecosystem service), with rye, we get both services, but the added vetch dilutes the weed suppression of the rye. There is a tradeoff in using mixtures to obtain multiple services (multi-functionality). In another strike against mixtures, Finney and Kaye (2016, same study, different paper) found that this multi-functionality was only weakly related to the number of species in a mixture. Their study "does not support the hypothesis that increasing the number of species in a mix will lead to predictable increases in multi-functionality at levels that are agronomically or ecologically relevant." Why don't cover crop mixes work better than monocultures? Well, first, some ecological theory. The idea that biodiversity is better than monoculture comes from ecologists studying natural habitats. In nature, they observe niche differentiation (Connor et al 2011). The idea is that a diverse mix of organisms can better use the available resources because of their different use characteristics. When their resource use does not overlap much, they are complementary. Take a field of wheat. If some plant species needed different resources than wheat, then we could expect that adding that species to the wheat field might result in more production in the same area. Better resource use means better productivity. That is the theory.

Niche differentiation is seen most clearly with animals, but plants are different. First, they do not move. They are stuck where chance happens to put them. Second, plants require the same resources: sunshine, CO_2, water, and nutrients (nitrogen for legumes is the exception). For these reasons, plants, especially annual crops, have much less opportunity for niche differentiation. And this is what we see in cover crop research results, little evidence of complementarity. Even in more natural systems, support for complementarity in plants is rare (Cardinale et al 2011). The authors of this paper ask, "How can species be 'complementary' in their use of resources and production of biomass, and yet, a diverse community not perform processes any more efficiently than its most efficient species?" The simple answer is that there is

no complementarity in these diverse mixes. Cardinale and colleagues cannot go this far, but rather think it "warrants more investigation."

Seed of a boring, but effective one-species cover crop.
Photo: A. McGuire

Rather than complementarity, there are simple tradeoffs. When plant species compete for the same resources, there are winners and losers. Mixing a less productive species with a high productive species reduces total biomass production (with the exception of legumes in infertile soils). Winners dominate losers in mixed stands, to the point where the losers are suppressed by the canopy, or larger root system of the winner. This is what we see in cover crop polyculture research. Dominant species, which happen to be our most productive crops, tend to dominate. If we control them by reducing their seeding rate, the less extreme species grow better, but not enough to make up for the lower population of the dominant species.

Finney and Kaye mention possible reasons why cover crop mixtures may not live up to ecological theory. Whereas polyculture advantages have been seen mainly in perennials growing together for several years, cover crops are annuals growing for just a short time. In natural systems, the number of species present is very much greater than in agriculture where we select dominant plant species for our crops.

Monoculture cover crop; effective, economical, and easy to plant.
Photo: A. McGuire.

This demonstrates the basic problem with attempts to make agriculture more like nature; agriculture is not like nature. Whether it be crop rotation, cover crops, or the need to supply farm fields with inputs, agriculture is not like nature. Therefore, we should not be surprised when one of these principles, here the diversity-productivity relationship, does not apply.

There are other reasons not to use mixtures in cover crops. First, because monoculture powers crop rotation benefits, planting a cover crop mixture increases the risk that a pest will find something in the mix it likes. Add to this the difficulty in seeding multiple species, finding the right timing for planting a diverse mix, and the increased cost of seed blends . . . if these mixtures do not give extra benefits, why grow them?

What might be a feasible and possibly beneficial option is planting multiple varieties of one species. Wenatchee ARS researcher, Mark Mazzola (2002), has found significant differences in the effects of different wheat varieties on the soil microbial community. Similar effects may occur with varieties of other cover crop species. Adding this kind of diversity to a cover crop comes without all the problems of species mixes and may prove beneficial.

I think that any cover crop can do some good. If you like planting polycultures, do it. But don't let the appeal of the silver bullet, of the secret solution, cloud your judgment. Novelty entices the most sober-minded of us into thinking "this is it." I still sometimes grow cover crop mixes, but also monocultures. Both are good, but as I found, and as science is confirming, cover crop mixes are not the restore-everything-to-as-it-should-be final solution we hope for.

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Row Covers for Spring and Fall Gardens . . . *By Mark Amara*

In a year like 2017, floating row covers may provide ways to get a jump on the outdoor gardening season earlier or extend it longer. Season extenders come in all shapes, sizes, materials, and thicknesses. They are used for frost protection, insect or other critter control (like birds, squirrels, or rabbits), as a passive heat source, and to maintain more uniform growing conditions in erratic weather (that sometimes occurs in the Columbia Basin). Row covers can be used early in the spring or in the fall. The products best suited to temperature variations or extremes provide some protection from freezing, are good heat insulators, and may help keep insect pests from plants. They are typically made of synthetic polypropylene or woven polyester that allows water and air to move freely through them. Plastic may also serve as a passive heater cover though it does not breathe nor does it allow air or water in.

With the exception of plastic, materials mentioned above come in different thicknesses and weights that vary in the amounts of light and heat they transmit. If row covers are carefully handled, they can be reused over multiple years. Lightweight row covers allow 90% light through, and are often advertised as insect barriers but are not intended to serve as frost protection. These materials are very thin and may rip easily so are generally not reusable after they rip. Medium weight row covers allow 85% light and frost protection to 28°F. Heavy weight row covers allow 35-50% light through and frost protection in the 24-28°F range.

Any type of row cover should be cleaned or hosed off to keep soil from adhering to it. Without proper cleaning, materials tend to break it down more quickly. Be sure cover materials are thoroughly dry before storing to keep them from molding or breaking down further.

Row covers are usually sold 5- to 50-feet wide and may be up to 1000 feet in length. They are laid directly over plants or over support structures like aluminum, PVC or plastic hoops and anchored with soil, rocks, or other heavy objects. If using for insect protection, check to be sure insects are not present on plants before and after covering to reduce infestation issues. For example, in my Moses Lake vegetable garden, I often use both the lighter weight insect covers and heavier weight frost protectors supported by wire hoops for different situations. I anchor the fabric to the ground with wood or steel fence posts rather than by soil so it can be easily removed and reduces opportunities for weeds to proliferate on the edges. Row covers are generally resilient when it comes to irrigation. Ideally, drip irrigation works the best though overhead sprinkler irrigation works fine since materials are permeable.

Once plants are established in the warmth of spring, the frost protection covers can be removed. Alternatively, they can be left on for pest protection or used to re-cover plants later in the fall when cold temperatures threaten.

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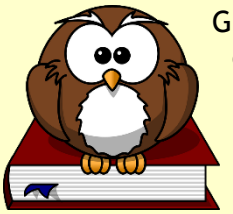
Reaching Out to Master Gardeners and the Public for Continuing Education



Grant-Adams Master Gardeners now have an opportunity to earn one hour of continuing education credit by simply reading the *Grounded* newsletter. A 20-question quiz will appear in *Grounded* each quarter based on information given in the previously published newsletter articles (which can be viewed online at http://extension.wsu.edu/grant-adams/gardening/master_gardeners/). Anyone can complete the quizzes for fun, OR Master Gardeners may complete and submit their answers to the WSU Program Coordinator and record 1 hour toward continuing education. Answers will be shown in the next newsletter.

The program idea came from the Clallam County, Washington Master Gardeners. If the program proves to be a success for the Grant-Adams MGs, plans are to step up the game to feature specific articles on pest, horticulture, specific plant diseases, etc. Sharpen your pencils and your skills and watch us grow!

1. The proper mowing height during spring through fall is: **a. Less than 1-1/2"** **b. Greater than 3"** **c. Between 2 and 3"** **d. Between 1-1/2" to 2-1/2**	**2. After thatching, you should:** **a. Compost and aerate** **b. Aerate and water** **c. Compost, aerate, fertilize and water** **d. Compost, aerate, fertilize and reseed**
3. Pill and sow bugs are crustaceans: **1. True** **2. False**	**4. Seeds in the seed library are categorized by ability level:** **a. True** **b. False**
5. Gardeners can reduce populations of pill bugs by: **a. Limiting soil moisture late in the evening** **b. Collecting bugs in halved grapefruit or melon** **c. Limiting access to the home by using caulking or weather strip, and sealing foundation cracks** **d. All the above**	**6. A typical annual return rate of seed to the library is:** **a. 10-20 percent** **b. 15-30 percent** **c. 50-70 percent** **d. 10-40 percent**
7. The phrase "Take It All Off" referred to emerging research about the benefits of bare-rooting trees and shrubs prior to planting to help eliminate barriers, allowing for root correction, enhancements to root growth, and improved survival. : **a. True** **b. False**	**8. Leaves do not need water:** **a. True** **b. False**
9. 60-70 percent of plant problems are due to: **a. Climate and water** **b. Water, soil and fertilizer** **c. Planting mistakes and soil**	**10. "Our mission is to support best practices and advance education for Master Gardeners in Washington" refers to the mission statement for:** **a. Washington State University Master Gardeners** **b. Washington State Master Gardener State Board** **c. Washington State Grant-Adams Master Gardener Foundation** **d. Washington State Master Gardener Conference**
11. Leaves do not need water: **a. True** **b. False**	**12. Using soaker hoses and drip lines in your garden can reduce weeds:** **a. True** **b. False**
13. Manito Park has over 150 varieties of roses: **a. True** **b. False**	**14. The phrase "Limb up a shrub" means to trim a bushy plant in an attractive tree:** **a. True** **b. False**

15. The Kaiser Conservatory houses: **a. Desert and tropical plants** **b. Diseased plants for research** **c. Perennials and annuals** **d. Biennial tropical plants**	**16. The next Washington State Master Gardener Conference is scheduled for September 2017 and will be held in:** **a. Hawaii** **b. Ephrata** **c. Seattle** **d. Yakima**
17. Black plastic laid in the garden is an effective method of solarizing the soil to: **a. Kill gophers** **b. Maintain moisture** **c. Eliminate weeds and seeds** **d. Draw nutrients to the surface**	**18. Soponaria lempergii Max Frei is:** **a. A salmon and pink flower that attracts humming birds** **b. A dwarf variety of Russian sage** **c. A giant pink-flowered late summer ground cover** **d. A sterile hybrid with no seeds**
19. Dissecting various plant parts and identifying/recording the specific characteristics helps gardeners to determine which family of plants each sample belongs to: **a. True** **b. False**	**20. The 3rd Annual Columbia Basin Eco-Gardening Symposium with emphasis on Vegetable Gardening will be held on April 22, 2017** **a. True** ***b*. False**

Pest Sightings

Pest	Management	Contact
Box Blight Invades Washington According to Jenny Glass, Plant Diagnostician, WSU Puyallup Plant & Insect Diagnostic Laboratory (http://puyallup.wsu.edu/plantclinic/) fungal disease box blight has surfaced in King County. A confirmed sample submitted late in 2016 showed distinct dark brown spotting on leaves and twigs plus the shrub canopy was quite bare due to leaf loss (defoliation). It spreads quickly and damages boxwood plants. The Calonectria (literature may also describe the pathogen under the name Cylindrocladium). Pathogen shows up as a white fuzzy growth (tissue often gets overrun by the Volutella canker present on most boxwoods) especially once tissue has been incubated in a moisture chamber.	Management options can be found at the PNW Plant Disease Management Handbook: https://pnwhandbooks.org/plantdisease/host-disease/boxwood-buxus-spp-box-blight. This particular fungal disease is not yet widely spread in Washington but since environmental conditions are conducive for disease development, its explosive life cycle, and low level in tolerant plants, it is expected to be an ever-increasing problem throughout the PNW. Infected tissue/plants can be pruned/removed. Unfortunately it is unlikely to be eradicated. If possible, burn/bury, or double bag and throw away infested tissue. For a pathogen like this (readily sporulating/spread in cool wet weather, do not put infested tissue into the municipal compost stream which can help prevent spread of the problem to unaffected plants. Follow label directions carefully if fungicides are used.	For more information, other extension sites (note not all the information/registered chemical management options listed may be applicable to situations in Washington): https://pubs.ext.vt.edu/PPWS/PPWS-29/PPWS-29-pdf.pdf https://extension.umd.edu/hgic/invasives/boxwood-blight http://massnrc.org/pests/pestFAQsheets/boxwoodblight.html
The Common Bed Bug According to Mike Bush, *WSU Extension Entomologist, Yakima* (bushm@wsu.edu), many insects come into the home to escape winter conditions. Among the most frequent pests observed in Central Washington during the winter is the common bed bug, *Cimex lectularius*. Some of the factors involved in the rise of bed bug infestations may be increased inter-regional travel and regulations limiting the use of effective pesticides.	Looking at the "bites" is of little value for diagnosis. In order to determine what it is requires a sample of the pest. Explaining where these critters live (bedding and in areas where people sleep) and how to catch bed bugs (scotch tape works well) may go a long way to figuring out what other potential pests are around us that bite humans. If bed bugs are identified, they have the following characteristics: Adult bed bugs are light brown to reddish-brown, oval-shaped, quite flat, lack wings and have a long needle-like mouthparts that allow them to puncture then suck blood from beneath human skin. Unfortunately, immature bed bugs can be as small as 1/8 inch long and most are difficult to see.	**References:** WSU Extension Pestsense http://pestsense.cahnrs.wsu.edu/Search/MainMenuWithFactSheet.aspx?CategoryId=3&ProblemId=769 WSU Fact Sheet070E- Bed Bugs: Recognition and Management http://cru.cahe.wsu.edu/CEPublications/FS070E/FS070E.pdf

Problem: Often clients come in asking what the devil is biting them while they are sleeping? If you are lucky, they bring in what it is they think is biting them.	**Recommendations:** Bed bugs can occur anywhere. Management of this pest depends on cleanliness of bedding and bed, or creating a barrier between an infested bedroom and the sleeping client (remember no wings, so bed bugs can only crawl in bed). Bed bug-proof mattress and spring encasements have been proven useful. Unfortunately, most people prefer to eradicate, not manage, bed bugs. This requires the services of a pest control specialist who can properly handle effective pesticide products AND an integrated pest management program for the household that includes non-chemical strategies such as properly and regularly cleaning bedding, reducing bedroom clutter, and maintaining a barrier that keeps bed bugs from climbing in bed.	

See it? Report it! Washington Launches an Updated Invasive Species App

OLYMPIA – Who should you tell if you reel in a strange fish, find a new plant taking over in your yard or local park, spot a strange insect in your firewood or see a feral pig while recreating in the backcountry? Figuring that out just got easier with an updated application from the Washington Invasive Species Council that lets you report unusual sightings on your smartphone or computer. Within a few minutes of sighting an invasive species, a photograph, geographic coordinates and sighting information can be entered and made available immediately with an automated alert to the council and its network of experts. "This streamlined process will enable invasive species managers in Washington State to more quickly respond to new invasive species sightings," said Justin Bush, executive coordinator of the Washington Invasive Species Council. "When it comes to successfully eradicating invasive species, early detection and a rapid response is key."

Invasive species and noxious weeds out compete native plants and animals, interfere with commercial harvest and result in millions of dollars in costs to control and undo damages. Nationally, invasive species cost more than $137 billion annually through crop damage, fisheries reduction, forest health impacts and management.

Once experts verify a mobile app report, it becomes part of the Early Detection and Distribution Mapping System (EDDMapS), from the University of Georgia's Center for Invasive Species and Ecosystem Health. EDDMapS is a Web-based mapping system that provides real time tracking of invasive species occurrences, and local and national distribution maps, available for viewing at eddmaps.org. EDDMapS contains more than 3 million invasive species occurrence reports made by 35,000 users across North America. This comprehensive view of invasive species locations helps to guide policy, research and decisions at local and international levels.

"EDDMapS aggregates data from many sources, professional and citizen scientists alike, through bulk data uploads, Web reports and smartphone reports into a database," said Chuck Bargeron, associate director for invasive species and information technology at the University of Georgia Center for Invasive Species and Ecosystem Health.

The technology could be valuable for a regional initiative to prevent the spread of aquatic invasive mussels in the Pacific Northwest and western Canada, said Matt Morrison, executive director of the Pacific NorthWest Economic Region. The organization is working to combat invasive quagga and zebra mussels. Since the late 1980s, these destructive and persistent aquatic invasive species have infested waterways across the United States and often are transported on boat hulls. "A reporting app that jurisdictions can use to pinpoint suspected invasive species incursions on a large-scale distribution map will be a major boon to regional mussel prevention and response efforts," Morrison said.

"Recent findings of mussel larvae in Montana–less than 75 miles from the Columbia River watershed–bring home the need for widespread invasive species monitoring and data-sharing technology. Preventing the introduction of invasive species in Washington State and the region is everyone's responsibility," Bush said. "The app is another tool to prevent invasive species introductions. You can start tracking invasive species today by visiting the Google Play Store and Apple iTunes App Store and searching for Washington Invasives."

The above article was provided by Dave Pehling, WSU Extension, Snohomish County (pehling@wsu.edu). For further information contact: invasivespecies@rco.wa.gov or Susan Zemek (360-902-3081) susan.zemek@rco.wa.gov

Master Gardeners are willing presenters on a variety of topics

Presenters and their topics are identified at the following:

http://extension.wsu.edu/grant-adams/wp-content/uploads/sites/39/2014/01/2017MGPresentations.pdf

New Master Gardening Training

Anyone interested in becoming trained as a Master Gardener is encouraged to fill out an application obtained by accessing the following link. Training begins in September 2017.

http://extension.wsu.edu/grant-adams/wp-content/uploads/sites/39/2017/02/MGBasicTrainingBrochure2017.pdf.

Master Gardener Plant Clinics

WSU Master Gardener volunteers are available to address your home gardening questions, but many budget/personnel changes impact how our Master Gardener Volunteers communicate with the public. 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 and third Saturdays, June through September, 8 am to 12 noon.
- **Moses Lake Farmers Market** McCosh Park – Dogwood Street side, Saturdays, May - October, 8 am to 12 noon.
- **Othello Ace Hardware** 420 E. Main Street, fourth Saturday of each of the identified months: May 27, June 24, July 28, and August 26, 2017, through August, 9 am to 12 noon.
- **WSU Grant-Adams Extension Office** 1525 E. Wheeler Rd., Moses Lake second & fourth Mondays, April through October, 9 am to 12 noon.

Mark Your Calendar

1. Third Annual Columbia Basin Eco-Gardening Symposium, April 22, 2017, 9 am to 1 pm at CB Technical Skills Center, Moses Lake. Focus is on Vegetable Gardening. Register for this free event by calling (509) 765-9618.
2. Annual Grant-Adams Area Master Gardener Plant Sale, Saturday, May 6, 2017, at the Moses Lake Farmers Market, 4001 W 4th Ave in McCosh Park, 8-1PM
3. Deadline for registration for bi-annual Grant-Adams Master Gardener training is August 30th, 2017.

Grant-Adams Counties Foundation Officers:
Terry Rice, President, 509 488-3871
Linda Crosier, Vice President, 509-488-3538
Diane Escure, Treasurer, 509 754-5747
Mark Amara, Secretary, 509 760-7859
Kris Nesse, At Large, 509 690-8452

Grounded Staff
Mark Amara
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