Welcome to the WSU Garfield County Extension Newsletter!

This is an electronic newsletter highlighting events and topics of interest to residents of Garfield County and the surrounding area. This newsletter can also be viewed on our website: https://extension.wsu.edu/Garfield/

Do you have an event or subject you would like added to our newsletter or website? Would you like to be removed from our Extension Newsletter email list?

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Washington State University helps people develop leadership skills and use research based knowledge to improve their economic status and quality of life. Extension programs and employment are available to all without discrimination. Evidence of noncompliance may be reported through your local Extension Office.
Stem Rust: Another Rust to Worry About! What to Do?

Stem rust is raising its ugly head in the Pacific Northwest again this season. Stem rust is a sporadic problem in the Inland Pacific Northwest that can cause total yield loss in wheat or barley crops in years that have persistent, late-season rainfall or warm, humid nights. Unlike other parts of the U.S. and world, the stem rust fungus (Puccinia graminis f. sp. tritici) depends on common barberry (Berberis vulgaris), a woody shrub, that is the alternate host for the stem rust fungus. As a result of this dependence on barberry, there are many more races of the stem rust fungus present in the Pacific Northwest than the rest of the U.S., which makes breeding for resistance impractical. The best way to manage stem rust outbreaks is to identify the location of common barberry bushes and destroy them.

Starting in the 1940s, the federal barberry eradication program destroyed thousands of barberry bushes across the inland PNW. However, no eradication measures have been taken since the 1970s allowing barberries to re-colonize areas, resulting in many more common barberry host plants around than we realize. When you discover a common barberry shrub, use a cut stump application method to kill the bush or a foliar application of the herbicide Imazapyr. Realize that a foliar application of Imazapyr will kill surrounding vegetation that the herbicide contacts.

More information on stem rust of wheat and barley is available on our website, including the bulletin “Identifying Rust Diseases of Wheat and Barley”, Washington State University Extension Publication MISC0197E, “Control of Common Barberry to Reduce Stem Rust of Wheat and Barley”, Washington State University Extension Fact Sheet FS151E, and “Identification and Management of Stem Rust on Wheat and Barley.” Information on the Federal Barberry Eradication program, including detailed maps of barberry eradication sites in Washington is titled “Protecting Cereal Grains from Stem Rust”.

Farming & Livestock

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For questions or comments, contact Steve Van Vleet via email at svanvleet@wsu.edu, at his office phone at 509-397-6290, or his mobile phone at 509-595-5163.
Soil Structure: Critical for Soil Stability and Crop Production

Why are we concerned about soil structure? Soil structure stabilizes our soil to resist erosion by wind and water while aiding in nutrient holding capacity and cycling. Over the past century, we have observed high rates of soil erosion in the Palouse resulting in soil degradation. The key to this is the loss of soil structure due to aggressive tillage and the reduction of organic matter (OM). One of the most important components of soil structure is OM which influences stability, aids in water storing capacity, nutrient cycling, and helps to buffer soil acidity. These are all fundamental to maintaining soil quality and health.

Soil structure is the arrangement of the soil solid particles (sand, silt, and clay) allowing for open pore space between the particles. The ideal soil components include: air 25%, water 25%, minerals 45%, and OM 5%. Structure is determined by how the individual units are arranged, bound together, or clumped to form aggregates resulting in the arrangement of soil pore spaces between them. The clumping is the result of OM (carbon) and biology activity such as earthworms and fungi. “Carbon is the food for the soil that builds the aggregates and makes the glue. Green plants take in carbon dioxide from the air and secrete carbon exudates into the soil.” Jay Fuhrer, Natural Resources Conservation Service, Menoken, ND. “When it comes to the glue, the fungi do most of the work. The fungi are comprised of long filaments that branch through the soil. Tillage breaks the filaments making it hard for the fungi to survive.”

This soil structure provides stability to the soil and resists erosion while influencing water infiltration, water holding capacity, air movement, microorganism activity, root growth, and seedling emergence. “Without soil structure, future operations may compact the soil by squeezing out the pore spaces between the soil aggregates.” Paul Jasa, Extension Engineer, UNL.

Tillage, one of the leading causes of soil structure breakdown, has been heavily used in the past. The loss of structure reduces the infiltration of water by more than a 10-fold rate and adds to soil compaction. Dr. Stewart Wuest, USDA ARS reported ½” per hour water infiltration on conventionally tilled soils while no-till soils allowed up to 5” per hour infiltration.

The reduction of tillage over time will help to re-build soil structure, but it will take time to recover from past traditions. The removal of crop residue will ultimately slow the recovery as OM will continue to decline adding to the stability problem. OM is a friend of the soil and is critical to soil health and quality.

View the soil aggregate stability test demo (video) by Doug Sieck’s Ranch in North Central South Dakota.

For questions or comments, contact Paul Carter via email at cart@wsu.edu, Associate Professor, WSU Extension and Columbia County Director.
WEEDS: THEY NEVER GO AWAY AND GREATLY INFLUENCE YOUR CROP YIELDS
CAHNRS & WSU Extension Wheat & Small Grains

Two invasive grass weeds in wheat have been added to our common weeds list: rattail fescue and ventenata.

Please visit the Weed Resources page for information on these weeds and other common weeds in wheat and small grains. Also view our extension publication about rattail fescue: Rattail Fescue: Biology and Management in Pacific Northwest Wheat Cropping Systems.

Rattail fescue and ventenata can be a severe problem in reduced tilled and no-till crop production systems. This does not exclude conventionally tilled ground of being devoid of rattail fescue or ventenata. Cropping rotation can be one of the best methods for rattail and ventenata management. Rotating into a spring pulse, spring brassica, winter pulse, or winter Brassica crop can give you options for rattail and ventenata management. Rattail fescue and ventenata can reduce crop yields up to 30%. Early application of several AC-Case—or ALS-inhibiting herbicides can control ventenata in a competitive grain crop. There can be effective control of rattail fescue using flufenacet +metribuzin or pyroxsulfone applied pre-emergence or glyphosate, pyroxsulam, flucarbazone-sodium, or mesosulfuron+thienocarbazone post-emergence, depending on cropping system and weed growth stage.

For questions or comments, contact Steve Van Vleet via email at svanvleet@wsu.edu, or by phone 509-397-6290.
WHAT EFFECT WILL THE 2020 FIRES HAVE ON BEES?  
Taken from the October-December 2020 Asotin County Extension Newsletter
https://extension.oregonstate.edu/forests/fire/what-effect-will-2020-fires-have-bees#

If 2020 couldn’t get any worse, it has. We are facing the worst series of fires in the state’s history. And it seemed to come out of nowhere. It was nice on Labor Day and then the smoke appeared. The skies are now the most foreboding shade of red. Thousands of people have been evacuated from their homes or are nervously waiting for a call to evacuate.

In the midst of this all, OSU Extension has gotten questions from gardeners and the public wondering what effects these fires have on bees. People have noticed that the bees have suddenly stopped flying. People wonder whether honey bee colonies are being choked by the smoke. People want to know that in spite of all the mayhem and loss “Will bees be okay?.

In this article we discuss what is known about the effect of forest fires on bees, how bees respond to the land ravaged by fire and how you can help bees while also protecting your property from future fires.

**Honey Bee Colonies**

The fires will be disruptive to the state’s 80,000 bee colonies. As we write this, a number of apiaries are at risk of being consumed by the advancing flames. If you recall, 10,000 colonies were lost to the massive brush fires in New South Wales, Australia in 2019-2020. already in California there are reports of large apiaries that are lost.

Fires move quickly and an apiary can turn into a pile of ash in hours. But even among surviving colonies, beekeepers are struggling to get to their apiaries ready for winter, since conditions are currently unsafe for beekeepers to work and manage their colonies. These preparations are particularly important to ensure high colony survival over the next five months.

**Wild Bee Nests**

By now, most of the state’s native bees have completed their reproduction and are hunkering down in nests for winter. But the susceptibility of these nests depends on where they are located. About 70% of our bee species nest in underground chambers. While soil temperatures can be very hot directly at the surface of a fire, they can fall to normal temperatures just 4 inches down. Although we don’t exactly know the average depth our bees nest in Oregon, a global survey estimated that over 75% put their young in chambers deeper than 4 inches. So, most of these bees won’t even notice the fire.

But around 30% of our bee fauna nest above ground in twigs and stems, including small carpenter bees, mason bees and leafcutting bees. Nests of these bees that are not directly burned, will likely overheat and die. Research by the OSU Forest Animal Ecology Lab, for example, noticed a conspicuous absence of typically common stem-nesting small carpenter bees 5 years after the big Douglas Complex Fires in southern Oregon.

**Smoke and Bee Behavior and Physiology**

Many people noticed something was wrong with the bees when the smoke rolled in; they suddenly weren’t visiting the flowers like they were when it was clear. One reason is that smoke has lowered temperatures and bees just aren’t active when it’s cooler. A second answer comes from a Swedish research group who were studying the qualities of light around forest fire haze in Alaska. Many insects, including bees, use the pattern of polarized light in the sky as a kind of compass to know where they are going. These patterns are invisible to us, but appear to bees as varying levels of polarized light in the sky. Bees use these gradations in polarized
As guideposts to navigate from their nest and to flowers and back. These patterns are maintained even when it’s cloudy. But apparently, this pattern gets very distorted once that red-haze sets in. Most significantly, the amount of polarized light in the sky can fall to levels below what a bee can discern, but also the pattern shifts. Essentially, the strength of the polarization “compass” that bees use not only gets weaker, but it also points the bees in a different direction than normal. Getting to a flower gets to be a very hard task. At this time, beekeepers are reporting bees are flying normally from the colony and collecting pollen, so their absence in gardens may indicate they are taking shorter flights to flower patches closer to home.

The ash itself may interfere with the ability of bees to breathe, smell, taste as well as have other effects on their physiology. Although there is very little research on these effects, one group of researchers observed that when they exposed butterflies to simulated smoke conditions, the ash particles didn’t work its way into the butterfly respiratory system, but it nonetheless reduced the survival and growth –rate of caterpillars. They interpret their results to mean that the ash isn’t interfering with breathing as much as is poisoning the larvae as they consume the toxic material contained in the ash.

**Post Wildfire Effects**

Okay. But there is a bright spot in all this gloom. Very few bees live in closed canopy forests. For this reason, bee diversity and abundance typically increases in the years following a fire. Think of it — there is a huge flush of flowering forbs and shrubs that puts thousands of acres of new bee food in the landscape in the span of a few years while also creating open habitat in areas that were previously closed canopy forest. This was certainly the case following the massive 2013 Douglas Fire Complex in Southern Oregon.

As we all alluded to earlier, the OSY Forest Animal Ecology Lab surveyed these burned areas after 4 and 5 years following the fire. Remarkably, they found in areas where the fire was most severe, bee abundance and species richness was the highest. They also found that the blue orchard bee was able to rear its offspring across the gradient of fire severity, and produced more females at higher fire severity levels.

One reason for this boost was undoubtedly caused by the fact that the diversity of the flowering plant community that supported these bees was also enhanced by high intensity fires; another was that the open areas had more favorable temperatures for bee foraging. Their work suggests that periodic forest fires are part of a regular pattern of success of bee communities across the state, and that wild bees help post-fire habitats return to functioning ecosystems.

**“How Can I Help?” After the Clean-up**

After things return to some semblance of normality, it’s time to think about landscaping for bees in a way that is “fire-safe”. That means if people live in fire-prone areas they should practice fire-resistant landscaping, using plants the feed-bees but that do not add to the fuel-load. Ad it means planting in a way that ensures a defensible space around your home. OSU Extension has a great publication to help you balance fire-preparedness and planting for bees:

“Fire-Resistant Plants For Home Landscapes: Selecting plants that may reduce your risk from wildfire.”

This publication is available at the WSU/Garfield County Extension Office, 757 Main Street, Pomeroy, WA, 509-843-3701.
As the upcoming winter’s cold and rain, snow and wind will soon be here, take any opportunity of mild weather to clean up flower and vegetable gardens. If you have not planted your spring flowering bulbs, get them planted. They will need time to develop roots to help them get through freezing temperatures.

Most, if not all, of the leaves should have fallen from the trees by the end of November. To clean them up try mowing the leaves. This will add organic matter to the lawn. Shredded leaves will all decompose by spring. If you want to add the leaves to your compost pile, shredding them with the lawn mower or shredder will speed up the composting process. Also, shredding them, if used to cover tender perennials and rose grafts, is a good use, and will let more air and water get to the roots. The ideal amount is around four inches. If using around trees keep it off the trunk, as mice and insects can hide in the mulch and eat the bark.

If your lawn and gardens seem dry, water them if the ground is not frozen. Plants and trees will winter better if there is moisture in the soil. Check for moisture and water if necessary. Dahlias and Gladiolus need to be lifted and stored in a cool location. Be careful when digging them, so not to cut or bruise them, as this will cause them to decay and rot. Cut the stems off after they have had time to dry and store in sawdust or peat moss.

Other than general late cleanup there is not much to do in the garden. Fall purchased Mums are not hardy in our area. They have beautiful fall color, but most likely as soon as we get several nights in the twenty’s they will die back and not come back in the spring, as their roots have not had time to get established. Mums should be purchased in the spring to get well established and survive shorter days and cooler temperatures.

Get amaryllis and Paper Whites started in November for blossoms in late December and January. Other spring flowering bulbs can also be forced to bloom in doors but they must be chilled first. Plant them in the container you want them to bloom in, then water them. Put the container in an area that is around 40 degrees. Take them out mid to late January and gradually expose them to warmer temperatures. A few weeks before you want them to bloom, expose them to bright light and you should get blooms.

A couple of ideas for plants that are hardy in our area are:

Beautyberry: Beautyberry has great fall color and birds like the berries!

Tall sedums, Autumn Joy and Autumn Fire have red flowers.
Gardening Information from Master Gardener Sue Fitzgerald (continued)

If you are looking for a tree that will have fall color and small berry-like fruit, take a look at the Crab apple tree. This tree can be pruned to keep it as a medium sized tree!

As we now have almost all of our vegetables harvested, here are some tips on storage. First, find a place in your house that stays below 60 degrees but above freezing. A cooler or clean garbage can wrapped with insulation to protect from the cold works well if put in an unheated garage or shed. You can store like crops in the same container. Root crops like it cold and damp, 32-40 degrees and up to 90% humidity. Pack them in a damp material such as sand or peat moss kept damp but not wet. For Carrots, Beets and the like, cut the tops to one inch and leave the roots intact. Potatoes store around 40 degrees. Keep them in a dark area so the potatoes will not turn green in storage. Onions should be kept at 33 to 50 degrees with under 50% humidity in a shallow box and no more than two layers or in mesh bags. Cabbage may be dug and reposed in moist soil or wrapped in plastic wrap and stored in a cool place. Pumpkins and squash, store at 50 to 60 degrees in a dry location. Apples or winter pears should be kept at 33 to 40 degrees with low humidity. You may wrap them in newspaper but do not stack too deep in a box.

In closing, remember to fill your bird feeders. Good seeds are Black Oil Sunflower Seeds and get suet cakes for the birds that are insect eaters such as chickadees, flickers and woodpeckers. Also, remember to supply clean, fresh water for the birds!

Happy Thanksgiving and Merry Christmas to you all! We hope you have a great gardening New Year!

From you WSU/Garfield County Master Gardeners
Thanksgiving
Thanksgiving is a time when many families travel long distances to celebrate together. Travel increases the chance of getting and spreading the virus that causes COVID-19. Staying home is the best way to protect yourself and others. If you must travel, be informed of the risks involved.

Lower risk activities

- Having a small dinner with only people who live in your household
- Preparing traditional family recipes for family and neighbors, especially those at higher risk of severe illness from COVID-19, and delivering them in a way that doesn’t involve contact with others
- Having a virtual dinner and sharing recipes with friends and family
- Shopping online rather than in person on the day after Thanksgiving or the next Monday
- Watching sports events, parades, and movies from home
Higher risk activities

Avoid these higher risk activities to help prevent the spread of the virus that causes COVID-19:

- Going shopping in crowded stores just before, on, or after Thanksgiving
- Participating or being a spectator at a crowded race
- Attending crowded parades

Moderate risk activities

- Having a small outdoor dinner with family and friends who live in your community
- Lower your risk by following CDC’s recommendations on hosting gatherings or cook-outs.
- Visiting pumpkin patches or orchards where people use hand sanitizer before touching pumpkins or picking apples, wearing masks is encouraged or enforced, and people are able to maintain social distancing
Enroll today to get your 4-H KICK OFF KIT!

Welcome to the 2020-2021 4-H Year!

The new 4-H Year begins October 1 and we're excited to see what the 2020-2021 year will bring! Any 4-H member enrolled by the deadline will receive a free 4-H Kick Off Kit to start the year off right! The 4-H office will be in touch with more details once your enrollment is processed.

Enroll By:
NOVEMBER
15th, 2020

Go to:
v2.4honline.com
DID YOU KNOW ABOUT WSU’S CHARLES R. CONNER NATURAL HISTORY MUSEUM?

Any visit to southeastern Washington should include a stop in Pullman and the Washington State University campus. Several museums on the campus offer exhibits that will spark the interest of any curious visitor. In the midst of it all lies the Connor Museum, the largest public collection of birds and mammals in the Pacific Northwest. Conner Museum traces its beginnings to 1894, when Charles R. Conner, president of the Board of Regents, persuaded the State of Washington to donate its exhibits from the Chicago World’s Fair to the fledgling Washington State Agricultural college. Those first exhibits were a mixture of several disciplines including anthropology, geology, biology and, of course agriculture. Over time and through the influence of successive curators, the museum’s theme gradually narrowed and focused on vertebrate animals. Today the museum’s public exhibit includes over 700 mounts of birds and mammals. The scientific collection used by researchers houses over 65,000 specimens.

CLICK HERE TO VISIT CONNOR MUSEUM WEBSITE

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Helping You Put Knowledge To Work