WASHINGTON STATE UNIVERSITY
WALLA WALLA COUNTY EXTENSION
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http://extension.wsu.edu/wallawalla

Newsletter

March 2020

Announcements

MARCH

13 Working Together for Soil Health, Red Lion Inn, Pasco, WA. Free interactive work sessions focused on diving deeper into innovative soil health solutions. Contact Carol McFarland for more information at carol.mcfarland@wsu.edu or visit: http://farmersnetwork.wsu.edu/extension-education/workshops/2020/.

14 4-H & FFA Youth Beef Field Day, Lewiston Livestock Market, 8:00 a.m. – 3:00 p.m. This interactive youth field day provides the latest information on raising beef projects for youth, parents and leaders. Forms are available at: https://extension.wsu.edu/asotin/event/5562/. $8/person includes lunch. For information contact Mark Heitstuman at heitstuman@wsu.edu or 509-243-2009.

21 4-H and FFA Youth Swine Field Day, Asotin County Fairgrounds, 8 a.m. - 3 p.m. This interactive youth field day provides the latest information on raising swine for youth, parents and leaders. Forms available at: https://extension.wsu.edu/asotin/event/swine-field-day-registration-due/. $8/person includes lunch. For information contact Mark Heitstuman at heitstuman@wsu.edu or 509-243-2009.

21 Super Saturday, Walla Walla, Blue Mt. Community Church, 928 Sturm, 9:00 a.m. – 2:15 p.m. Youth in grades 1-12 are welcome. Youth do not have to be in 4-H to attend. Pre-registration required. See *4-H* section for details.

31 Scholarship Applications Due for the Walla Walla Valley Cattlemen's Association.

APRIL

25-26 April Fools Boer Goat Weekend, Southwest Washington Fairgrounds, Chehalis, WA. 12:00 p.m. **Prospect Wether Jackpot classes** for youth, two sanctioned **ABGA shows**, special Youth Showmanship Class, and ABGA-registered goat inspection by ABGA judges. Educational seminars & raffle. For more information, visit: http://www.cascadebga.org.

Updates

STRIPE RUST FORECAST, JANUARY 7, 2020 AND 2019 FUNGICIDE AND VARIETY YIELD LOSS TESTS

Adapted from Xianming Chen

Based on the weather conditions in November and December, 2019, stripe rust in the 2020 wheat growing season is forecasted to be in the severe epidemic level range (40-60% yield loss). Using forecast models based on the 2019 November and December weather data, yield loss of highly susceptible winter wheat varieties in the 2020 crop season is forecasted to be in the range of 29 to 56% with an average of **44%**. This number is higher than the forecast (38%) made last January for the 2019 crop season due to the relatively warm weather in November and December, 2019. Currently grown varieties are forecasted to be **0** to **22%** yield losses depending upon the level of resistance or susceptibility. Based on the forecast, fields grown with moderate susceptible or susceptible winter wheat varieties (stripe rust ratings 5 to 9) may need the early fungicide application at the time of herbicide application. The early prediction made in January is often close to the real situation, but is usually not better than the prediction in March based on the entire winter. Therefore, we will make another prediction in early March. However, stripe rust resistant or moderately resistant spring wheat varieties (stripe rust rating 1 to 4 in the Seed Buyer's Guide) are recommended to plant.

More information available at: https://striperust.wsu.edu/2020/01/21/2020-first-stripe-rust-forecast-and-2019-fungicide-and-variety-yield-loss-tests-january-7-2020/.

A special **THANK YOU** to the Walla Walla Cattlemen's for sponsoring this newsletter!

Walla Walla County CATTLEMEN'S ASSOCIATION

THE 2019 WSHGA AND WSU ALFALFA VARIETY TRIAL IS AVAILABLE

Check out the 2019 Alfalfa Variety Trial Winners at http://wa-hay.org/variety-trials/. This year the Washington State Hay Growers Association invested in getting first cut alfalfa quality on all entries. The value of protein, energy, and fiber quality have been determined on a per ton as well as per acre for each variety.

NEW FROM EXTENSION: INFORMATION AND IDEAS FOR RANCHERS, FARMERS, COOKS AND COMMUNITIES

Every month, WSU Extension experts publish guides that help farmers and communities solve challenges and improve practices.

Available for free online, the latest publications help ranchers address grazing management and water quality risks; inform gardeners and farmers about diseases in potatoes, tomatoes, watermelons, zucchini, pumpkins and cucumbers; share production and performance at WSU's Wilke Farm; introduce products made from straw to help deal with soil acidification; help home cooks safely prepare queso fresco; and more.

Recent Extension guides include:

Grazing management that achieves multiple-use goals, with Russ Stingley (Rancher-to-Rancher Case Study series (PNW724)

WSU Wilke Research and Extension Farm Operation, Production, and Economic Performance for 2018 (TB64E)

Season-Long Management of Late Blight on Potato and Tomato in Western Washington (TB65E)

Water Quality Risk Assessment for Grazing Areas (FS332E)

Nitrogen Inhibitors: How Do They Work to Reduce N Losses? (FS333E)

Fresh Cheese Made Safely (PNW539)

A Wheat Straw Pulping Co-Product Mixed with Lime May Address Soil Acidification in No-till Fields (TB63E)

Harvest Weed Seed Control: Applications for PNW Wheat Production Systems (PNW730)

You can find all Extension publications at the WSU Extension Publications store at https://pubs.extension.wsu.edu.

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Pest Alert

The Washington State Department of Agriculture (WSDA) has confirmed reports of Houdini fly in Washington State. The Houdini fly is a kleptoparasite. It does not attack mason bees directly, but lays its eggs on the pollen meant for the mason bee young. The Houdini fly maggots then emerge and consume the food before the mason bee larvae, which causes them to starve.

The white grubs are Houdini fly maggots. Photo: Crown

Houdini fly is believed to be permanently established in Washington. However, mason bee producers and home hobbyists can reduce the impact on managed mason bees, which in turn will also help wild mason bee populations, through good management practices.

Mason bees are native pollinators that are active for a short time in early spring. They are one of the few reliable pollinators during cool spring weather, which is important for many fruit crops for farmers and gardeners.

Adult Houdini fly emerging from mason bee tube. Photo: Flickr user gbohne

Management suggestions

- *Harvest mason bee cocoons*- Open mason bee nesting materials before they emerge in the spring and destroy Houdini fly maggots.
- *Control adult mason bee emergence*- If you cannot open nesting materials, place your nesting materials in a fine mesh bag and close tightly. As the bees emerge, release the mason bees daily and kill any Houdini flies.

More ways mason beekeepers can help

- Only use nesting materials that allow you to open, inspect, and harvest cocoons. Visual inspections can greatly reduce Houdini fly populations.
- Before purchasing mason bees, ask the provider how they harvested and whether they inspected the cocoons for Houdini fly. Only purchase pest-free mason bee cocoons.

Contact the WSDA Pollinator Health program at pollinators@agr.wa.gov or call 1-800-443-6684. For more detail information, including how to inspect mason bee cocoons, visit: agr.wa.gov/pollinators.

4-H

SUPER SATURDAY

Walla Walla County 4-H will be hosting our annual community Super Saturday program on March 21st, 2020 from 9:00 a.m. to 2:15 p.m. Join us for a day of fun and hands-on educational workshops for youth in grades 1–12. Open to all youth including non 4-H. Youth will have the opportunity to choose from a variety of classes including robotics, aeronautics, community service, food science, teen leadership, and more.

Pre-registration and a fee of $5 per person are required. Youth scholarships are available in case of financial hardship. Some classes have age restrictions. Class sizes are limited and fill up on a first come (paid), first enrolled basis. Register early! For more information, stop by the WSU Extension office, visit: http://extension.wsu.edu/wallawalla/ or call WSU Extension at 524-2685, or email mowens@wsu.edu .

Farming & Livestock

NITROGEN-FIXING GENES COULD HELP GROW MORE FOOD USING FEWER RESOURCES

Adapted from John Peters, WSU institute of Biological Chemistry

John Peters

Scientists have transferred a collection of genes into plant -colonizing bacteria that let them draw nitrogen from the air and turn it into ammonia, a natural fertilizer.

The work could help farmers around the world use less man-made fertilizers to grow important food crops like wheat and corn.

The group of scientists, including two from Washington State University, published the study "Control of nitrogen fixation in bacteria that associate with cereals" late last month in Nature Microbiology.

"There's a growing interest in reducing the amount of fertilizer used in agriculture because it's expensive, has negative environmental impacts, and takes a lot of energy to make," said John Peters, Director of WSU's Institute of Biological Chemistry and a co-author on the paper. "There's a huge benefit to developing ways to increase the contributions of biological nitrogen fixation for crop production around the world."

How legumes get nitrogen

The team's research helps share a symbiotic benefit found in legume crops, which farmers have relied on for centuries to naturally enrich the soil.

Legume crops, such as chickpeas and lentils, require significantly less fertilizer than other crops, because they've developed a symbiotic relationship with bacteria that grow within their root tissues. These bacteria convert nitrogen gas to ammonia through a process called biological nitrogen fixation.

Bacteria take nitrogen from the air and convert it into ammonia for the plants, which use it for energy to grow. The plants in turn provide carbon and other nutrients to the microbes.

To work symbiotically, legumes and microbes have evolved to release signals that each can understand. The plants give off chemicals that signal to the bacteria when they need fixed nitrogen. The bacteria produce similar signals to let the plants know when they need carbon.

Fertilizer reduction

To develop a synthetic method for this symbiosis between other bacteria and crops, scientists worked to determine the groups of genes in bacteria that enable nitrogen fixing, then add those gene groups into other bacteria.

"This is just one step, although a large step, on the road to figuring out how to promote increasing contribution of biological nitrogen fixation for crop production," Peters said.

Peters and WSU are co-leads on the overall project with his colleague Philip Poole at the University of Oxford in the UK.

Reducing fertilizer requirements could have massive impacts on food availability, energy use and agriculture costs all over the world. Fertilizers are too expensive for many farmers around the world. Without them, many nutritionally valuable foods won't grow in many areas due to nitrogen-poor soil.

"This project is aimed at increasing food production and helping feed the world," Peters said. "Transforming food production to work without nitrogen-based fertilizers could be a huge development in underdeveloped countries. Adding these microbes would be like pouring kombucha on roots."

Complex challenge

Peters' lab specializes in studying metabolic processes in bacteria, or how they create and use energy. His lab provided a blueprint for how nitrogen fixation works in different organisms. Then his co-authors, synthetic biologists at the Massachusetts Institute of Technology, can create the mechanisms that microbes and plants will need.

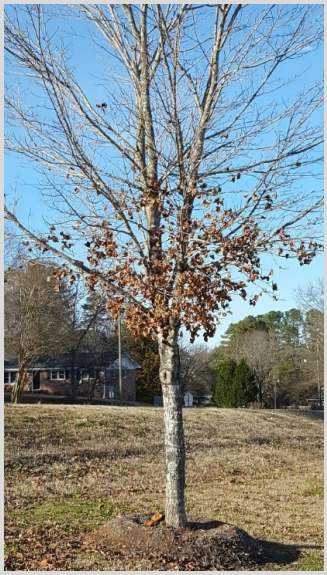
"This is such a complex and wide-spread challenge it really takes a large team with varied areas of expertise to solve," Peters said. "But if we succeed, the reward could be huge for the entire planet."

The project has been funded the National Science Foundation and the Biotechnology and Biological Sciences Research Council in the UK.

Home & Garden

WINTER LEAF MARCESCENCE

Joey Williamson, PhD, HGIC Horticulture Extension Agent, Clemson University



Cold autumn temperatures caused the more juvenile lower limbs of this red maple to hold onto their leaves. Joey Williamson, Clemson Extension

Have you noticed the persistent brown leaves still hanging on some deciduous trees long after their foliar companions have fallen? This usually becomes very apparent after normal leaf drop in early winter. These brown leaves may remain attached until spring bud growth pushes them free.

Complete leaf drop (abscission) may not occur on some trees until spring, or they may drop from all but lower limbs on other tree species. This is foliar marcescence, which comes from the Latin, *marcescere*, and means "to fade". The persistent leaf does not readily form an abscission layer at the base of the leaf petiole (leaf stalk), where it attaches to the twig. This allows these brown leaves to remain attached on trees much longer.

Typically, leaf marcescence is seen on oaks (*Quercus* species), American beech (*Fagus grandifolia*), hornbeam (*Carpinus caroliniana*), Eastern hophornbeam (*Ostrya virginiana*), and witchhazels (*Hamamelis* species). However, depending upon the weather, it is infrequently seen on other species.

The marcescent characteristic is more pronounced on younger trees, but may be seen only on the lower, more juvenile limbs of larger, more mature trees, especially oaks. However, a long warm autumn that is quickly followed by the onset of cold weather will prevent the formation of this abscission layer on other tree species, as is frequently observed on maples.

Older deciduous trees typically drop all of their foliage, but more juvenile trees of some species may hold onto all or a portion of the foliage. Joey Williamson, Clemson Extension

A question that arises, though, does this marcescence benefit the trees or is it a detriment? Indeed, strong winter winds and snow may have a more harmful effect on a tree possessing foliage by causing more branch breakage. However, several theories proposed by plant ecologists suggest that leaves that drop later in the spring will provide a fresh layer of leaf mulch around the tree that helps conserve soil moisture, and these leaves decompose later during springtime to recycle and provide additional nutrients for growth. Another theory that seems to make sense is that lower limbs holding onto these dry unpalatable leaves may deter browsing by deer, who prefer to feed on the more tender and nutritious buds and twigs, not on the bitter, fibrous old foliage.

Whatever the reason for the marcescence, it is an interesting characteristic to see, and if you listen closely, you can hear these noisy, rattling leaves during the winter breezes.

Financial Fitness

THE DIRTY DOZEN TAX SCAMS

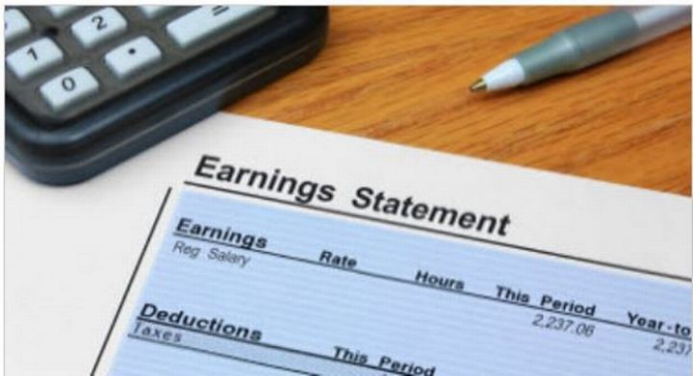
Beth Waitrovich, Michigan State University Extension

Updated from an original article written by Vivian Washington.

Along with tax time, tax scams will be arriving too. Taxpayers should be aware of the fraudulent activity that revolves around tax preparation and filing.

The Internal Revenue Service (IRS) classified 12 scams a few years ago as the Dirty Dozen tax scams.

- **Phone scams:** Con artists pretend to be



legitimate representatives of the IRS. They threaten victims with deportation, arrest, or other devastating consequences to extort money and personal information.

- **Phishing:** Victims receive emails or are directed to websites that look authentic and seem to be from the IRS, but are not. This is a ploy to gain personal information.

- **Identity theft:** The victim's social security number is stolen and used to file a fraudulent tax return. The victim usually discovers this crime when attempting to file their own taxes. They are told the return has been previously filed.

- **Return preparer fraud:** Some tax preparers are criminals and steal personal information from their customers. These preparers will also victimize their customers with refund fraud, expensive preparation fees, and other scams.

- **Offshore tax avoidance:** Dishonest taxpayers attempt to hide profits and income in offshore accounts in order to avoid paying taxes.

- **Inflated refund claims:** A tax preparer has no knowledge of a taxpayer's current financial situation. The preparer has not reviewed any of the customer's records or documents but promises a large refund. The preparer may suggest that the taxpayer sign a blank tax return. The tax preparation fee will be exorbitant because it is based on a percentage of the anticipated refund.

- **Fake charities:** Taxpayers should be aware that illegitimate charities exist. Fake charities solicit donations for their own use. Donations given to these charities are not tax deductible. Tax payers can verify an organization's ability to accept tax exempt donations. The Internal Revenue Service (IRS) provides the Exempt Organization Select Check for taxpayer use.

- **Hiding Income with fake documents:** Taxpayers file fraudulent tax forms, specifically Form 1099, in an attempt to decrease their tax bill or increase their refund.

- **Abusive tax shelters:** Con artists create elaborate scams to help cheating tax payers hide money and avoid large tax bills.

- **Falsifying income to claim credits:** Tax credits reduce the amount owed to the IRS. Some taxpayers will invent income in order to qualify for these credits.

- **Excessive claims for fuel tax credits:** These credits are limited to farming or off highway business use. However, dishonest taxpayers (or tax preparers) will claim this credit to increase the size of their refund.

- **Frivolous tax arguments:** Taxpayers employ preposterous and absurd arguments to evade the payment of taxes. They are willing to go to court to substantiate these foolish claims. Many times their court cases are dismissed and thrown out of court. Taxpayers can be assessed a $5,000 penalty for filing a frivolous tax return.

Michigan State University Extension educators warn taxpayers to be on the lookout for the dirty dozen tax scams. In addition, remember:

- The IRS will not call you without having sent a letter first. They will NOT request only certain types of payment, such as debit cards.

- Taxpayers should have a clear understanding of what is in their tax return. Taxpayers are responsible for the information in their return even if they had someone else prepare it.

Food Safety

THE CORE FOUR PRACTICES OF FOOD SAFETY

CLEAN: Wash hands and surfaces often.

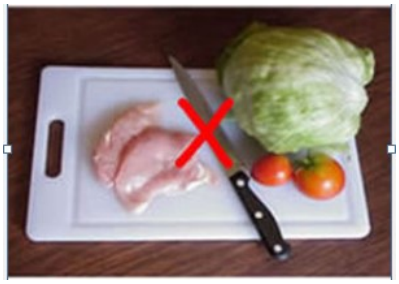
Bacteria can be spread throughout the kitchen and get onto hands, cutting boards, utensils, counter tops and food. To Fight BAC!® always:

- Wash your hands with warm water and soap for at least 20 seconds before and after handling food and after using the bathroom, changing diapers and handling pets.

- Wash your cutting boards, dishes, utensils, and counter tops with hot soapy water after preparing each food item and before you go on to the next food.

- Consider using paper towels to clean up kitchen surfaces. If you use cloth towels wash them often in the hot cycle of your washing machine.
- Rinse fresh fruits and vegetables under running tap water, including those with skins and rinds that are not eaten.
- Rub firm-skin fruits and vegetables under running tap water or scrub with a clean vegetable brush while rinsing with running tap water.

SEPARATE: Get it Straight – it's safer to separate!



Cross-contamination is how bacteria can be spread. When handling raw meat, poultry, seafood and eggs, keep these foods and their juices away from ready-to-eat foods. Always start with a clean scene — wash hands with warm water and soap. Wash cutting boards, dishes, countertops and utensils with hot soapy water.

- Separate raw meat, poultry, seafood and eggs from other foods in your grocery shopping cart, grocery bags and in your refrigerator.
- Use one cutting board for fresh produce and a separate one for raw meat, poultry and seafood.
- Never place cooked food on a plate that previously held raw meat, poultry, seafood or eggs.

COOK: Cook to safe temperatures.

Food is safely cooked when it reaches a high enough internal temperature to kill the harmful bacteria that cause foodborne illness. Use a food thermometer to measure the internal temperature of cooked foods. The best way to Fight BAC!® is to use a food thermometer which measures the internal temperature of cooked meat, poultry and egg dishes, to make sure that the food is cooked to a safe internal temperature.

Download and print this meat and poultry safe temperature chart: http://www.fightbac.org/wp-content/uploads/2016/04/PFSE-7696-cooking-chart_FINAL.pdf

- Make sure there are no cold spots in food (where bacteria can survive) when cooking in a microwave oven. For best results, cover food, stir and rotate for even cooking. If there is no turntable, rotate the dish by hand once or twice during cooking.
- Bring sauces, soups and gravy to a boil when reheating. Heat other leftovers thoroughly to 165°F.

CHILL: Refrigerate promptly.

- Refrigerate foods quickly because cold temperatures slow the growth of harmful bacteria. Do not over-stuff the refrigerator. Cold air must circulate to help keep food safe. Keeping a constant refrigerator temperature of 40 °F or below is one of the most effective ways to reduce the risk of foodborne illness. Use an appliance thermometer to be sure the temperature is consistently 40 °F or below. The freezer temperature should be 0 °F or below.
- Refrigerate or freeze meat, poultry, eggs and other perishables as soon as you get them home from the store.
- Never let raw meat, poultry, eggs, cooked food or cut fresh fruits or vegetables sit at room temperature more than two hours before putting them in the refrigerator or freezer (one hour when the temperature is above 90 °F).
- Never defrost food at room temperature. Food must be kept at a safe temperature during thawing. There are three safe ways to defrost food: in the refrigerator, in cold water, and in the microwave. Food thawed in cold water or in the microwave should be cooked immediately.
- Always marinate food in the refrigerator.
- Divide large amounts of leftovers into shallow containers for quicker cooling in the refrigerator.
- Use or discard refrigerated food on a regular basis.

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Celebrating 100 Years of Extending Knowledge and Changing Lives.

Debbie M. Williams
County Extension Director