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

Newsletter

March 2019

Announcements

MARCH

1,2 Inland Northwest Small Acreage Farming Conference, University of Idaho Pitman Center. On-Farm Research, including Marketing, Farm Profits, Livestock and Regenerative Grazing, Insects & Pollinators, and Soils topics. Panel of Inland NW Leaders in Sustainable Small Farming and Ranching, along with Farmer-to-Farmer Discussion Sessions. Registration includes conference materials, light breakfast snacks, a catered lunch, and a ticket to the Friday evening performance of Map of My Kingdom. For more information visit: https://www.eventbrite.com/e/cultivating-the-harvest-inland-nw-20th-anniversary-small-acreage-farming-conference-tours-tickets-55689754555.

9 Great Explorations, Whitman College Cordiner Hall, 8:20-2:45. Event designed to provide 5th through 8th grade girls with an informal, and hands-on experience with careers that utilize science, technology, engineering and math along with an opportunity to meet and form personal contacts with women in these exciting careers. Follow this link for the brochure and registration form: https://gewallawalla.com/#/registration.

16 4-H and FFA Youth Sheep & Goat Field Day, Asotin County Fairgrounds, 8 a.m. - 3 p.m. This interactive youth field day provides the latest information on raising sheep and goat projects for youth, parents and leaders. Forms are available at: https://s3.wp.wsu.edu/uploads/sites/2061/2019/01/Final-2019-Youth-Sheep-Goat-Field-Day-Flyer.pdf. $8/person includes lunch. For information contact Mark Heitstuman at heitstuman@wsu.edu or 509-243-2009.

23 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://s3.wp.wsu.edu/uploads/sites/2061/2019/01/Final-2019-Youth-Beef-Field-Day-Flyer.pdf. $8/person includes lunch. For information contact Mark Heitstuman at heitstuman@wsu.edu or 509-243-2009.

23 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. You do not have to be in 4-H to attend. Pre-registration required. See *4-H* section for details.

Exploring 4-H

Roots of Resilience

27-28 NW Grazing Conference: Resilience for Land & Livestock, Pendleton Convention Center, 9 a.m.-5 p.m. Learn more about the innovative practices in cattle behavior and sustainable approach to grazing and pasture recovery by industry leaders. For more information visit: http://pnchm.org/educational-opportunities/grazing-conference-2019/?utm_medium=email&utm_source=govdelivery.

APRIL

6,7 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, http://www.cascadebga.org.

Updates

THE 2018 WSHGA AND WSU ALFALFA VARIETY TRIAL IS AVAILABLE

Check out the 2018 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.

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

Walla Walla County CATTLEMEN'S ASSOCIATION

THE 2019 FIRST FORECAST OF STRIPE RUST FOR THE EASTERN PACIFIC NORTHWEST

Adapted from Xianming Chen

Based on the weather conditions in November and December 2018, stripe rust in the 2019 wheat growing season will likely be in the upper normal epidemic level range (20-40% yield loss). According to the forecast models, highly susceptible winter wheat varieties would have yield loss ranging from 27 to 48% with an average of **38%**. Currently grown varieties would have yield losses from 0 to **19%** depending upon the level of resistance or susceptibility. If this forecast is close to the real disease level, fields grown with moderate susceptible or susceptible winter wheat varieties (stripe rust ratings 5 to 9) would need the early fungicide application at the time of herbicide application. Based on the past experience, the early prediction made in January is often close to the real situation, but not better than the prediction in March based on the entire winter weather conditions. Therefore, we will make another prediction in early March.

Figure 1. Stripe rust found in a winter wheat field in Grant County on November 16, 2018.

The data can be used to select stripe rust resistant varieties to plant and to determine if fungicide application is needed for a variety based on its relative yield loss and potential epidemic level. Based on the current forecasted epidemic level (38% yield loss on susceptible varieties) for 2019 (see above), fungicide application would be needed for the varieties with a fungicide application rating 2 or higher, or stripe rust ratings 5-9 as mentioned above. Varieties with fungicide application ratings 0 and 1, or stripe rust ratings 1 to 4 in the Seed Buyer's Guide, would not need fungicide application in 2019.

To view the 2018 WSU Spring Wheat Variety Trials stripe rust data file, visit: https://s3.wp.wsu.edu/uploads/sites/2070/2019/02/Stripe-rust-18202_SEDN_FLD_GH_RPT.pdf. To view the West Regional Uniform Nursery stripe rust data files, visit: https://s3.wp.wsu.edu/uploads/sites/2070/2019/02/Stripe-rust-18203_SRCN_FLD_GH_RPT.pdf

WSU EXTENSTION NEWSLETTER
PUBLISHED 4-6 TIMES ANNUALLY

VOLUME 2019, NO. 2
WSU EXTENSION
WALLA WALLA COUNTY
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POSTMASTER send address changes to:
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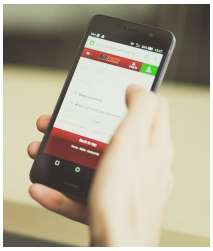
NEW RANGE AND LIVESTOCK PODCAST AIMS TO HELP RANCHERS ADDRESS PRODUCTION RISK



Washington State University Extension, the Society for Range Management, and the Rangelands Partnership have launched the first-of-its-kind podcast on rangeland ecology and management in a project funded by the Western Center for Risk Management Education and USDA NIFA.

This interview-style podcast broadcasts the considered thoughts of experts in the field, both academic and practitioner, to ranchers and natural resource professionals on topics designed to address risks identified by ranchers and researchers as the greatest threats to ranching's viability. The podcast helps aspiring and established range managers learn from those who have mastered the art and/or understood the science.

According to Nathan Sayre of UC-Berkeley, "the threats to ranching today are not fundamentally ecological ones . . . the forces [arrayed against it] are economic and political in nature". Education through conversation is needed to address the breadth of social, ecological, and economic risk factors specific to rangeland-based livestock production.

The Art of Range is a first-of-its-kind podcast produced by Washington State University in cooperation with the Society for Range Management. It has been designed to address risks to ranching. The Art of Range podcast broadcasts interactive conversation with some of the brightest minds in rangeland management, including ranchers, researchers, and resource professionals, on the toughest topics related to ranching risks.

Go to www.artofrange.com to subscribe through your favorite podcasting app or to listen—join us for the conversation!

Farming & Livestock

PLANT IMMUNE RESPONSE BLUEPRINT FOUND; DISEASE RESISTANCE TARGETED

By Scott Weybright, College of Agricultural, Human, and Natural Resource Sciences

Washington State University researchers have discovered the way plants respond to disease-causing organisms, and how they protect themselves, leading the way to potential breakthroughs in breeding resistance to diseases or pests.

The results were published in the journal Plant Physiology and describe how plants respond to

a molecule released during damage caused by infection or outside entities. The paper shows how adenosine 5-triphospate (ATP), a part of DNA and energy production in cells, becomes a signal for injury or infection when outside cells. That signal triggers defense responses in plants.

"We found the pathways that connect ATP to plant cell responses protecting the plant," said David Gang, WSU professor in the Institute of Biological Chemistry.

The ATP plant research team included, l-r, David Gang, Joel Sowders (WSU grad student), Jeremy Jewell, Kiwamu Tanaka

The science behind this is exciting, but the major impact on society will come from the future use of this information, said Kiwamu Tanaka, assistant professor in WSU's Department of Plant Pathology.

"This is a blueprint for how a plant's immune system works," Tanaka said. "In some respects, even the most innovative breeding programs are still groping around in the dark to build resistance. But if you have the blueprint, you can reach the goal much faster."

Gang compared it to a common experience people have with automobiles. "If your car isn't working right, you often have to take it to a mechanic because cars are so complex now," he said. They plug the car into a sensor and can see the problem quickly. If I did it, I'd have to guess and hope I get it right. That's how traditional breeding is, much of their work is challenging because they have to work with so many complex potential solutions. Now they'll have a schematic to eliminate a lot of that extensive effort."

Doing the science

To find the correct pathways, the research team used wild plants as well as plants changed in the major pathways of plant defense. The scientists would trigger an ATP response in a modified sample to trace the signal's path to the receptor, then reproduce that in the other samples. It was time-consuming science, with a big payoff, said WSU postdoctoral researcher, and lead author on the paper, Jeremy Jewell.

"It was like following a single noodle in a huge bowl full of them," Jewell said. "Extra-cellular ATP turns on defense responses partly through these major defense pathways, and partly independently of them, but all these strands work together. When we found new players in this immune pathway, it was a great feeling."

How ATP works

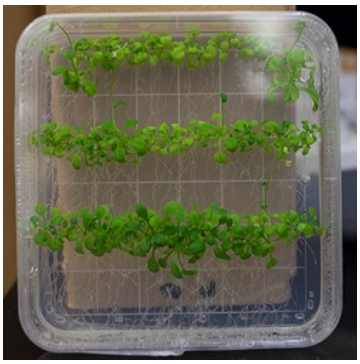
ATP is an energy molecule that is necessary for life to function, Tanaka said. It's very well researched and understood inside of cells. But ATP fundamentally changes when it is outside a cell in an organism.

"Extra cellular ATP is a damage signal to the surrounding cells," Tanaka said. "ATP is only outside a cell when something is damaged, so it's a perfect trigger for immune responses."

The receptor that receives the damage signal ATP was found in 2014, but until now scientists didn't know how this signal caused an immune response in plants.

"Future plant breeding can now increase plant defense or resistance based on knowing these pathways," Gang said. "

They can be bred to respond faster, or to not waste energy by turning on the entire immune system if only a specific defense is required. The potential for this is pretty incredible for helping plants and crops."



Arabidopsis thaliana (mouse-ear cress), a model organism in plant biology, was used in the experiments

Funding support comes from the National Science Foundation (IOS -1557813) to Tanaka and Gang.

Media Contact:

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Home & Garden

CANKER REMOVAL NOW IS CRITICAL FOR FIRE BLIGHT MANAGEMENT THIS YEAR

Adapted from Tianna DuPont, WSU Extension

Fire blight is an important disease effecting pear and apple. Infections commonly occur during bloom or on late blooms during the three weeks following petal fall. Increased acreage of highly susceptible apple varieties on highly susceptible rootstocks has increased the danger that infected blocks will suffer significant damage.

After the severe fire blight outbreak in 2018, it is particularly important to remove fire blight cankers this winter. They will be the source of the disease in 2019.

Where does Fire Blight Come from? Erwinia amylovora, the fire blight pathogen, overwinters in cankers in the orchard. Bacteria overwinter in living tissue surrounding cankers formed at the base of spurs or shoots killed the previous season. Cankers will also form where cuts were made to remove infected shoots during the growing season.

Fire blight canker bleeding in spring

Cells of the Erwinia pathogen survive primarily in the canker margins where diseased bark tissue meets healthy bark tissue. Frequently, the pathogen inside many of these cankers dies out over the course of the winter, but in 20% to 50% of cankers active cells of the pathogen survive until the next bloom period. In spring, during periods of high humidity, the pathogen oozes out of the canker margins. This ooze is attractive to insects (e.g., flies) as a food source who then move the infectious ooze to the flowers.

Fire blight cankers are considered annual cankers. While the canker itself is not likely to move further, the ooze in the spring is the source for new infections.

What do Fire Blight Cankers Look Like? Cankers are areas of dead tissue. There are other types of cankers, but fire blight cankers are reasonably easy to identify. They are greyish, lavender-ish, and sometimes almost black. The tissue may be somewhat sunken and cracked. The cankers are associated with shoots that were killed last year. In the tissue of young shoots, the blight moves quickly through the tissue and down to a larger stem.

Pruning It is best to prune the cankers before the tree is shaped for structure, and remove the blighted prunings from the orchard as they can be a source of pathogen cells in spring. Compared to cuts made in summer, winter removal cuts can be made closer to the visible canker edge because the pathogen is confined to the cankered area. Cut at the next "horticulturally sensible" site below the canker. Focus your efforts in blocks where you had fire blight last year. But after a year like this one it is best to check all of your blocks.

Overwintering canker. Photo credit Mark Longstroth, Michigan State University.

Food Safety

FOOD PRODUCT DATING
Adapted from USDA Publication

What is Dating?
"Open Dating" (use of a calendar date as opposed to a code) on a food product is a date stamped on a product's package to help the store determine how long to display the product for sale. It can also help the purchaser to know the time limit to purchase or use the product at its best quality. It is not a safety date. After the date passes, while not of best quality, the product should still be safe if handled properly and kept at 40 °F or below for the recommended storage times listed on the chart (see below). If product has a "use-by" date, follow that date. If product has a "sell-by" date or no date, cook or freeze the product by the times on the chart.

What Types of Food Are Dated?

Open dating is found primarily on perishable foods such as meat, poultry, eggs and dairy products. "Closed" or "coded" dating might appear on shelf-stable products such as cans and boxes of food.

Types of Dates

- **"Sell-By"** date tells the store how long to display the product for sale. You should buy the product before the date expires.
- **"Best if Used By (or Before)"** date is recommended for best flavor or quality. It is not a purchase or safety date.
- **"Use-By"** date is the last date recommended for the use of the product while at peak quality. The date has been determined by the manufacturer of the product.
- **"Closed or coded dates"** are packing numbers for use by the manufacturer.

Safety After Date Expires
Except for "use-by" dates, product dates don't always refer to home storage and use after purchase. "Use-by" dates usually refer to best quality and are not safety dates. But even if the date expires during home storage, a product should be safe, wholesome and of good quality — if handled properly and kept at 40 °F or below. See the accompanying refrigerator charts for storage times of dated products. If product has a "use-by" date, follow that date. If product has a "sell-by" date or no date, cook or freeze the product by the times on the chart.

Foods can develop an off odor, flavor or appearance due to spoilage bacteria. If a food has developed such characteristics, you should not use it for quality reasons.

If foods are mishandled, however, foodborne bacteria can grow and cause foodborne illness — before or after the date on the package. For example, if hot dogs are taken to a picnic and left out several hours, they wouldn't be safe if used thereafter, even if the date hasn't expired.

Other examples of potential mishandling are products that have been: defrosted at room temperature more than two hours; cross contaminated; or handled by people who don't use proper sanitary practices. Make sure to follow the handling and preparation instructions on the label to ensure top quality and safety.

What Do Can Codes Mean?

Cans must exhibit a packing code to enable tracking of the product in interstate commerce. This enables manufacturers to rotate their stock as well as to locate their products in the event of a recall.

These codes, which appear as a series of letters and/or numbers, might refer to the date or time of manufacture. They aren't meant for the consumer to interpret as "use-by" dates. There is no book which tells how to translate the codes into dates.

Cans may also display "open" or calendar dates. Usually these are "best if used by" dates for peak quality.

In general, high-acid canned foods such as tomatoes, grapefruit and pineapple can be stored on the shelf 12 to 18 months; low-acid canned foods such as meat, poultry, fish and most vegetables will keep 2 to 5 years — if the can remains in good condition and has been stored in a cool, clean, dry place.

Dates on Egg Cartons

Use of either a "Sell-by" or "Expiration" (EXP) date is not federally required, but may be State required, as defined by the egg laws in the State where the eggs are marketed. Some State egg laws do not allow the use of a "sell-by" date.

Many eggs reach stores only a few days after the hen lays them. Egg cartons with the USDA grade shield on them must display the "pack date" (the day that the eggs were washed, graded, and placed in the carton). The number is a three-digit code that represents the consecutive day of the year (the "Julian Date") starting with January 1 as 001 and ending with December 31 as 365. When a "sell-by" date appears on a carton bearing the USDA grade shield, the code date may not exceed 45 days from the date of pack.

Storage of Fresh or Uncooked Products

Product	Storage Times After Purchase
Poultry	1 or 2 days
Beef, Veal, Pork and Lamb	3 to 5 days
Ground Meat and Ground Poultry	1 or 2 days
Fresh Variety Meats (Liver, Tongue, Kidneys, Heart)	1 or 2 days
Cured Ham, Cook-Before-Eating	5 to 7 days
Sausage from Pork, Beef or Turkey, Uncooked	1 or 2 days
Eggs	3 to 5 weeks

Storage of Processed Products Sealed at Plant

Processed Product	Unopened, After Purchase	After Opening
Cooked Poultry	3 to 4 days	3 to 4 days
Cooked Sausage	3 to 4 days	3 to 4 days
Sausage, Hard/dry, shelf stable	6 weeks/ pantry	3 weeks
Corned Beef, uncooked, in pouch with pickling juices	5 to 7 days	3 to 4 days
Vacuum-packed Dinners, Commercial Brand with USDA seal	2 weeks	3 to 4 days
Bacon	2 weeks	7 days
Hot Dogs	2 weeks	1 week
Luncheon Meat	2 weeks	3 to 5 days
Ham, Fully Cooked	7 days	Slices, 3 days; Whole, 7 days
Ham, canned, shelf stable	2 years/ pantry	3 to 5 days
Canned Meat and Poultry, shelf stable	2 to 5 years/ pantry	3 to 4 days

Always purchase eggs before the “Sell-By” or “EXP” date on the carton. After the eggs reach home, refrigerate the eggs in their original carton and place them in the coldest part of the refrigerator, not in the door. For best quality, use eggs within 3 to 5 weeks of the date you purchase them. The “sell-by” date will usually expire during that length of time, but the eggs are perfectly safe to use.

Storage Times

Since product dates aren’t a guide for safe use of a product, how long can the consumer store the food and still use it at top quality? Follow these tips:

- Purchase the product before the date expires.
- If perishable, take the food home immediately after purchase and refrigerate it promptly. Freeze it if you can’t use it within times recommended on chart.
- Once a perishable product is frozen, it doesn’t matter if the date expires because foods kept frozen continuously are safe indefinitely.
- Follow handling recommendations on product.

4-H

SUPER SATURDAY

Walla Walla County 4-H will be hosting our annual community Super Saturday program on March 23rd, 2019 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 .

HEAD • HEART • HANDS • HEALTH

FOCUS ON HEALTH

Societal Issue: Today’s young people face many unique challenges and environmental pressures that require resilience and good health to thrive.

- Mind - Academic pressure, Emotional stress, Lack of sleep
- Body - Poor nutrition, Lack of movement and physical activity, Substance abuse

Solution: A strong foundation of healthy living skills creates young adults equipped to navigate life’s challenges, pursue their passions, and contribute to the world around them.

4-H’s Role: 4-H Healthy Living projects empowers youth to be healthy – body and mind – with the skills to make healthy decisions and lead healthy lifestyles through peer-led, hands-on, community-focused activities.

4-H’s Impact: Research shows that 4-H’s healthy living programs make 4-H’ers:

- More likely to spend more hours being physically active
- Two times more likely than peers to make healthy decisions
- Four times more likely than peers to take action in their community
- Concerned about the health of peers and family and can think of innovative solutions to health issues.

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WASHINGTON STATE UNIVERSITY
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Celebrating 100 Years of Extending Knowledge and Changing Lives.

Debbie M. Williams
County Extension Director