Oregon State University Extension Service / Crook / Deschutes / Jefferson / Warm Springs

CENTRAL OREGON AGRICULTURE E-NEWS

A BI-MONTHLY PAPERLESS NEWSLETTER
October 16, 2020

OFGC Forage Webinars

Starting October 8 and through mid-November, every Thursday, Oregon Forage and Grassland Council will be holding one hour webinars on some aspect of forages. The OFGC Forage Webinars run from noon to 1:00 p.m. Check out their agenda at https://www.oregonforage.org/events/.

Mylen Bohle

Home on the Range Webinar Series

The BC Chapter is hosting a webinar series to showcase the research of students, young professionals, and researchers in the field of Range Management in the PNW Section. Each 30 minute webinar will feature one, 15 minute presentation, followed by time for questions and discussions.

Tuesday at 7 pm, PT
October 27

Tuesday at 12 pm, PT
November 3

Registration and abstracts are viewable here. For questions contact: BCCHapterSRM@gmail.com.

Tim Deboodt

The Western Meat School

The Western Meat School is an innovative learning experience where farmers, ranchers, butchers, and others will learn how to direct market meat. For start-ups & seasoned producers this 6 week long course will cover key topics in production, processing, and marketing to produce high-quality meat and sell to diverse market channels. Learn new ways to manage risk in your meat business and improve your profitability. Coming to a town or computer near you! Classes in Eugene, Central Point, or Prineville, OR. Or available 100% online for wherever you may live. Classes begin November 4, 2020.

Register here www.westernmeatschool.com

Scott Duggan

Inside this issue:

Oregon State University

Central Oregon Agriculture is a bi-monthly newsletter produced by the Central Oregon Extension offices and the Central Oregon Agricultural and Extension Research Center (COAREC). The intent of this newsletter is to extend agricultural research-based information, to solve problems, develop leadership and manage resources wisely. Please direct comments and changes to the mailing list of your local County office.

♦ Mylen Bohle, Editor, (541) 447-6228

♦ Carol Evoniuk, Ag Newsletter Coordinator, (541) 447-6228

Central Oregon County Extension Offices (all area codes are 541)

Crook County Extension Service - Phone 447-6228, 498 SE Lynn Blvd. Prineville, OR 97754

Deschutes County Extension Service - Phone 548-6088, 3800 SW Airport Way Bldg. #4, Redmond, OR 97756

Jefferson County Extension Service - Phone 475-7107, 850 Dogwood Lane., Madras, OR 97741

Warm Springs Confederated Tribes- Phone 553-3238, 1110 Wasco St., PO Box 430, Warm Springs, OR 97761

Central Oregon Agricultural Research and Extension Center (COAREC)
850 Dogwood Lane, Madras 97741

♦ Carol Tollefson, Director, 475-7107

Extension Service & Experiment Station Web Sites

Crook County: *http://extension.oregonstate.edu/crook*

Deschutes County: *http://extension.oregonstate.edu/deschutes*

Jefferson County: *http://extension.oregonstate.edu/jefferson*

Warm Springs: *https://extension.oregonstate.edu/warmsprings*

Central Oregon Agricultural Research Center: *http://oregonstate.edu/dept/coarc/index.php*

Central Oregon Agricultural Extension Service Staff

♦ Nicole Strong, Regional Director, 829-1270

♦ Mylen Bohle, Crops, Cereals, Hay, Pasture, Irrigation, Soil, Fertility. 447-6228

♦ Ariel Cowan, Wildland Fire, 548-6088

♦ Amy Jo Detweiler, Horticulture, 548-6088

♦ Scott Duggan, Livestock, 447-6228

♦ Jeremiah Dung, Plant Pathology, 475-7107

♦ Glenda Hyde, FCH, Master Food Preservation, 548-6088

♦ John Spring, IPM & Weeds, 475-7107

♦ Thomas Stokely, Forestry, 548-6088

♦ Toni Stephan, Horticulture and Small Farms Instructor, 548-6088

♦ Clare Sullivan, Small Farms/Specialty Crops, 548-6088

♦ Carol Tollefson, 475-7107

♦ Heike Williams, Bees & Pollinators, 475-7107

♦ Tracy Wilson, Ag Literacy Coordinator, 475-7107

Websites
OSU Ag Information https://extension.oregonstate.edu
Oregon's Ag Progress https://oap.oregonstate.edu
OSU Extension Publications Catalog
https://catalog.extension.oregonstate.edu

The above individuals are devoted to extending agricultural information to producers. Many of the individuals, in addition to agriculture, have assignments in research, 4-H Youth, administration and community resource education.
Often it is appropriate to mention brand names of some commercial products; however, they are used only for the purpose of information. Extension does not guarantee or warrant the standard of the product, or does it imply approval of the product to the exclusion of others.

Tri-State Growers Convention

The Tri-State Grains Conference has been rescheduled for *November 30 to December 3, **2021***. Oregon Wheat Growers' League will hold their annual meeting on *December 1, **2020***. For more details go to: http://www.owgl.org/.

Mylen Bohle

Free KN95 Masks for Agricultural Workers

Masks are provided through a partnership with ODA, the Governor's office, OSU Extension, and other regional partners. They will be available while supplies last.

Protect yourself from smoke.

- Air quality levels are hazardous
- If possible stay indoors
- If possible reduce outdoor physical activity during work
- If you need to work outdoors, wear a mask that filters at least 95% of airborne particles (N95/KN95 masks)

Pick up locations:

Crook County Extension Office
498 SE Lynn Blvd, Prineville
Hours for pick up: M-F, 8 am-12 pm, 1 pm -5 pm
You can also call to arrange a pick up time. (541) 548-6228

Deschutes County Extension Office
3800 SW Airport Way Building #4, Redmond
Hours for pick-up: M-F, 8:30 am – 4:30 pm
You can also call to arrange a pick up time. (541) 548-6088

Jefferson County – Central Oregon Ag Research and Extension Center
Please call the Jefferson County Extension Office for a list of locations. (541) 475-7107

Warm Springs
Please call the Warm Springs Extension Office for pick up information. (541) 553-3238

OSU Extension

The Oregon Conservation Reserve Enhancement Program (CREP)

Do you have a stream, creek or river on your property in need of Riparian Restoration?

The Conservation Reserve Enhancement Program can provide funding for planting, fencing, seeding, Juniper removal, livestock water development and other practices to enhance habitat and improve water quality. The Conservation Reserve Enhancement Program is a partnership program between USDA's Farm Service Agency and Oregon Watershed Enhancement Board. This program serves Crook, Deschutes & Jefferson County private landowners. For more information, contact Victoria Fischella, CREP Planner for Jefferson, Crook and Deschutes Counties at: Victoria.Fischella@usda.gov – USDA Service Center: 625 SE Salmon Ave. Suite 6. Redmond, OR 97753

Victoria Fischella

OREGON STATE UNIVERSITY
BEEF CATTLE WORKING GROUP PRESENTS

Fall Webinar Series

From October 13 to November 17
5:30 - 6:30 PM PDT

Oregon State University Extension Service

Shelby Filley & David Bohnert
Hay Feeding Value and Protein Supplementation
October 13th

Juliana Ranches
The Importance of Mineral Supplementation

October 20th

Ian McGregor
Strategic Supplementation for Beef Cattle
October 27th

Sergio Arispe & Morgan Johnsrud (Select Sires)
Understanding EPDs for Selecting Bulls
November 5th

Chuck Estill
Pain Mitigation of Routine Procedures for Calves
November 10th

Scott Duggan & Mylen Bohle
Plants Toxic to Livestock in Range & Pastures
November 17th

FREE ONLINE REGISTRATION AT:

https://oregonstate.zoom.us/webinar/register/WN_-Md3Nxj-Sh-L7WcXCZau3A

Questions? Email Juliana Ranches at juliana.ranches@oregonstate.edu

Webinar Registration: https://oregonstate.zoom.us/webinar/register/WN_-Md3Nxj-Sh-L7WcXCZau3A
Scott Duggan

Pesticide Recertification and License Renewal

This is a new helpful resource for pesticide applicators. As a result of COVID-19 ongoing management, many in-person trainings have been paused; however, OSU has fully online, interactive training options that can help fill the gap. If you are looking for CORE pesticide credits, OSU's **Pesticide Applicator Series** **is 100% online** and can be completed from the comfort and safety of your home.

Renew Your License Around Your Schedule
Our experienced Oregon State University faculty lead the online Pesticide Applicator courses that qualify for CORE pesticide applicator recertification credits. Depending on your needs, you can choose one or all of the following interactive on-demand courses that can be taken anytime, anywhere.

Each of our online courses meet ODA's pesticide applicator recertification requirements for 1 CORE credit.

- **Personal Protective Equipment**
- **Pesticide Labels and Formulations**
- **Getting Tough with Pests and Going Soft on Pollinators**
- **Introduction to Pest Management: The IPM Approach** *(coming soon)*
- **Zinc Phosphide: Baiting for Belding's Ground Squirrels in Oregon**
  (2 credits. Does not qualify for CORE credit)

In addition to these online courses, there's also a robust collection of upcoming live recertification webinars - https://agsci.oregonstate.edu/psep/recertification/live-webinar-courses

Oregon Department of Agriculture has added more ODA-Accredited On-Demand Online Courses. More information here. https://mylicense.oda.state.or.us/plsapex/f?p=106:751:::NO:RP,751

If you want more information or have specific questions, please don't hesitate to email or call Greg Aronoff at **541-737-4197.** We look forward to helping you get a jump start on earning your **recertification credits** by signing up today!

Gregory D. Aronoff**,** Communications Manager
Oregon State University | Professional and Continuing Education | 541-737-4197
workspace.oregonstate.edu

Mylen Bohle

COVID-19 PPE Available to Agricultural Producers and Farmworkers

The Extension offices in Crook, Deschutes, and Jefferson Counties have KN95 masks and hand sanitizer still available at no cost for any agricultural producers and farmworkers that need these supplies. In addition to the PPE supplies, the Extension offices also have high-speed hand-washing posters, in English and Spanish, designed by OSU Extension Family and Community Health faculty that illustrates how groups of people can properly wash their hands in five minutes or less.

Locations in Central Oregon to pick up PPE:

Crook County Extension Office
498 SE Lynn Blvd
Prineville, OR 97754
Phone: 541-447-6228

Deschutes County Extension Office
3893 Se Airport Way
Redmond, OR 97756
Phone: 541-548-6088

Central Oregon Agricultural Research and Extension Center
850 NW Dogwood Ln
Madras, OR 97741
Phone: 541-475-7107

Tracy Wilson

Hay Market Report – October 16, 2020

There was quite a bit of activity with hay sales in Oregon this last week. Check out the Oregon hay markets at: https://www.ams.usda.gov/mnreports/ams_3057.pdf. The weekly Oregon hay report comes out Friday morning. If you would like to check out other states hay market reports, click on this link which is the home page: https://www.ams.usda.gov/market-news/hay-reports.

Mylen Bohle

2021 Lambing School *Sponsored by Oregon Sheep Growers Association*

DATE: SATURDAY, JANUARY 16, 2021
TIME: 8 am to 5 pm
LOCATION: Mont Alto Ranch, 2800 French Creek Rd, Glide, Oregon

PRESENTED BY: Gene Pirelli
Dr. Paul Bailey, Bailey Veterinary Clinic
John Fine

This is an excellent opportunity to learn how to increase your odds of getting live lambs on the ground and off to a good start! This school will be held in a commercial sheep lambing barn, so there will be ample hands-on opportunities.

"EMPHASIS TO BE HANDS-ON EXPERIENCE"

Ewes: Lambing problems, obstetrics, grafting, foot trimming and health.
Lambs: Castration, docking, vaccinations, and emergency situations as they arise.

The school will also include discussions on sheep nutrition and facilities. Participants are also asked to wear warm, appropriate barn clothing and bring clean rubber boots! All footwear will be disinfected before entering the barn.

Cost: $50 per person. The school will be limited to 12 participants. Selection for the school will be based on the first 12 registered. Preference will be given to those attending for the first time. Lunch will be provided with registration.

DEADLINE FOR REGISTRATION
Monday, January 11, 2020
(Or until the class is filled)

Remember, first come, first served, because, unfortunately, we can only accommodate twelve people in the class. Fees will be returned if the class is filled. If you must cancel your plans to attend, please notify us four (4) working days prior to the lambing school, so that we can still refund your money.

To register for the class, please fill out the enclosed form. Registration forms and fees must be received by January 13th to reserve your place in the class. All class participants will receive a packet of information.

For more details on the Lambing School please call John Fine at 541-673-0369 or email at johnandpeggyfine@charter.net.

Registration Form
LAMBING SCHOOL 2021
JANUARY 16, 2021
(Please Print)

Name_____
Last *First*

Mailing Address_____

City _____ State _____ Zip_____
County _____ Date_____
Home Phone _____
Message Phone _____
Email address_____

Make check payable to: **Oregon Sheep Growers Association**
Please return registration form and $50 per person to: John Fine
618 Temple Brown Road
Roseburg, OR 97470

Directions to the Lambing School:
Take exit 125 from I-5; Turn east on Garden Valley Blvd and proceed .5 miles; Turn right on NE Stephens and proceed 1.0 miles; Turn left on OR-138 E/NE Diamond Lake Blvd and proceed 18.0 miles; Proceed through Glide and cross the bridge and turn left on French Creek Road; Follow the signs.

Scott Duggan

WUSATA China Retail and Foodservice Virtual Buyers Mission

Meet with potential customers in China without traveling!

With market disruption from COVID-19, and the current geopolitical climate, we still see export opportunities in major cities in China and Hong Kong.

China is still the top market for U.S. products, including value-added, retail products, process and prepared foods. Retail and foodservice buyers, brokers, importers are still very interested in learning about quality food products from the Western U.S. For this activity, the top-tier cities of Hong Kong and Shanghai were chosen, as its economies will rebound faster than other areas and imported food consumption remains strong in the area.

Benefits of Participation

The virtual activity will include one-on-one buyer's meeting with qualified buyers such as importers and distributors.

- Meet one-on-one virtually with consumer-oriented importer and distributors from Hong Kong & Shanghai
- Receive shipping assistance for sending samples prior to meetings (shipping guidance to be provided early October)

Suitable Products

Suitable Retail, Foodservice & Ingredient products include, but are not limited to: process and value-added food products, prepared foods, snack foods, confectionery, organic products, condiments, sauces & spices, tree nuts, baking mixes, and other shelf-stable products like candy, nuts, chocolate, coffee, cookies, oils, dried fruits & veggies. All products must be shelf-stable with the exception of frozen seafood products.

Event Schedule
December 7, 2020 (Monday) at 5-8 PM, PST / 6-9 PM, MST – Hong Kong
December 9, 2020 (Wednesday) at 5-8 PM, PST / 6-9 PM, MST – Shanghai
times are subject to slight change during scheduling
Registration Fee: $100 per company. **Register here (Event is Sold Out, but a waitlist is offered.)**
Registration Deadline: October 9, 2020

Mylen Bohle

Virtual Buyers Meeting: ASEAN (SE Asia)

Weeks of November 2 & 9, 2020

WUSATA's Virtual Buyers Meeting: ASEAN will provide companies the opportunity to meet one-on-one with Southeast Asian Buyers interested in your company's products. This activity is focusing only on **snack foods/convenience foods**.

Meeting Times: Scheduled meetings will occur during the weeks of November 2 and November 9. Meetings will be scheduled for 30 minutes and will occur from 5:00-8:00 p.m. (PST). Meetings will be held one-on-one via Zoom and scheduled to accommodate both buyers and sellers. Companies may have scheduled meetings over the course of three days during the two-week time period.
REGISTRATION DEADLINE: September 25, 2020
Registration Participation Fee: $25 per company. Learn More and Register with WUSATA!

Virtual Buyers Meeting: Japan

WUSATA's Virtual Buyers Meeting: Japan will provide companies the opportunity to meet one-on-one with Japanese Buyers interested in your company's products. This activity is focusing specifically on **shelf stable snack foods, healthy foods and non-alcoholic drinks**.

Meeting Times: Scheduled meetings will occur on selected activity date: Monday (November 16), Tuesday (November 17) or Wednesday (November 18). Meetings will be held at 30 minutes intervals and scheduled from 4:00 p.m. to 7:00 p.m. (PST).
REGISTRATION DEADLINE: September 25, 2020
Registration Participation Fee: $25 per company. Learn More and Register with WUSATA!

Mylen Bohle

Far West Winter Conference

The Far West Agri-business Association will hold a Virtual Conference December 16-17, 2020. There are some good irrigated, dryland, pesticide, and safety related sessions always on the agenda. For more details and registration, keep checking this web site: http://fwaa.org/.

Mylen Bohle

Webinar Offers Solutions to Parasite Challenges

Integrated Parasite Management Webinar

Thursday, October 22, 12:30 to 3:00 p.m. MDT

Join NCAT sustainable agriculture specialist Dave Scott for an online Integrated Parasite Management training for sheep on Thursday, October 22, beginning at 12:30 p.m. MDT.

Livestock and sheep specialists from Montana, Wyoming, and Idaho will explain how to deworm strategically using FAMACHA scoring, proper grazing to avoid Barber Pole Worm ingestion, and using genetic selection to mitigate the devastating influence the Barber Pole Worm can have on your flock.

In addition to Dave Scott, who is also the co-owner of Montana Highland Lamb ranch, presenters include Dr. Whit Stewart, sheep specialist at the University of Wyoming Extension; Dr. Melinda Ellison, sheep specialist at the University of Idaho Extension, and Caleb Pirc, owner of Good Shepherd Farm in Idaho.

FAMACHA cards will be given to those who have completed the training and provided a video of themselves demonstrating the FAMACHA technique.
Registration is required, and you can reserve your spot here: https://attra.ncat.org/ipm-training/.

For more information, contact Dave Scott at daves@ncat.org or 406-490-7596.
This webinar is made possible through funding from Western Sustainable Agriculture Research and Education (WSARE).

About the Presenters:

Dr. Melinda Ellison serves as the Extension Range Livestock and Sheep Specialist for the University of Idaho. In addition to her Extension role, her research is focused on grazing livestock behavior and associations between grazing livestock, wildlife habitat, and rangelands. At home, she raises a small flock of sheep and markets finished lamb direct to consumers.

Caleb Pirc is the Government Affairs Manager for the Idaho Wool Growers Association and is also a producer himself. His operation, Good Shepherd Farm, sells breeding stock across the nation and meat locally. He also serves as the Vice-Chair for the Katahdin Hair Sheep International's National Sheep Improvement Program Committee and on the Board for the Rocky Mountain Katahdin Association. Additionally, he co-hosts the SheepThings.

Dave Scott has over 35 years of experience with adaptive multi-paddock grazing, first with dairy cows and the last 17 years with sheep. He and his wife operate Montana Highland Lamb with 180 ewes and close to 300 lambs on 32 acres of irrigated pasture in southwest Montana. They direct market lamb and are transitioning to regenerative grazing, which has yielded more ewe grazing days while reducing inorganic N-fertilizer inputs. At NCAT, Scott contributes practical "how-to" publications, podcasts, and videos for the sustainable farmer and rancher.

Dr. Whit Stewart began his current position as Assistant Professor-Extension Sheep Specialist at the University of Wyoming in July 2017. His current appointment involves extension, research, and teaching responsibilities. Previously he worked as Assistant Professor-Extension Sheep Specialist at Montana State University. He has published 31 peer-reviewed journal articles, 25 proceedings, 17 abstracts and over 90 popular press and extension publications. Whit's training and experience in the sheep industry has spanned seven states and has involved research in mineral nutrition of sheep, utilization of novel feedstuffs, sheep mammary health, and industry wide assessments of parasite resistance and lamb quality.

Scott Duggan

Key Takeaways from Oregon Business Summit

Thanks to all who logged into the second event in the 2020 Leadership Summit Series on September 30. For those of you who attended, as well as those who are interested, here's a link to a video recording of the event. Here are some key takeaways:

- Our challenge is recovery with shared prosperity. The pandemic is amplifying economic inequities and accelerating trends that threaten a recovery with shared prosperity.
- Accelerating change calls for new strategies and investments. We must invest in affordable broadband access for all, advertise our assets, attract "anywhere workers," reshore manufacturing, and embrace innovation in education.
- Opportunity gaps are more pronounced for many children. In the pandemic, learning loss for children in poverty is twice as high as for their peers. We must rethink how we support and educate students.
- Families and children need more focused support. To ensure shared prosperity, schools must prepare students effectively for success, parents must have good paying jobs, and affordable housing must be available.

Save the Date for This Upcoming Event

October 21: Developing Workforce Talent
The coronavirus pandemic ushered in an unprecedented economic crisis that, coupled with shifts in automation, may fundamentally reshape our economy. These changes have disproportionately affected certain industries and groups of employees. Experts will consider how we can reimagine talent development to prepare Oregonians for the jobs of today and the future, and ensure equitable opportunity for people of color, as well as low income and rural Oregonians.

Contact information: Oregon Business Plan, 1100 SW 6th Avenue, Suite 1608, Portland, Oregon 97204. 503-595-7616

Mylen Bohle

Oregon Wheat Virtual Shop Talks

Join us **Wednesday's at Noon (PST)** in November leading up to our Annual Grower Meeting, December 1. A chance to get the latest information from agencies or individuals who have had major changes that affect our producers.

30 minutes each on November 4, 18, and 25.
For more information visit www.owgl.org/shoptalks

Mylen Bohle

Landowner Input Needed!

In 2011, the Oregon Department of Fish and Wildlife (ODFW) established regional Local Implementation Teams (LITs) throughout Oregon that would utilize local input and collaboration to develop sage-grouse conservation action plans. In 2019, The Prineville Local Implementation Team (LIT) reconvened after ODFW designated a coordinator to oversee that team. The Prineville LIT is currently seeking input from landowners to develop a coordinated action plan. **The Prineville LIT needs landowner involvement!**

- How can the LIT help you make improvements to your operation?
- Landowner involvement will demonstrate a strong collaborative and make the LIT more competitive for grant funding.
- Landowner involvement will result in direct benefits to private land and adjacent public land.
- The LIT needs landowner input to ensure we develop a plan that makes sense for your operation!

The Baker LIT has already developed an action plan and below is a testimonial from one of their local representatives.

Meet a Baker LIT Landowner Representative

I was born in Ontario, OR into a Ranching/Farming family (two older sisters). We had an irrigated base farm in Vale, Oregon, and summer grazing 30 miles northwest at Juniper Mountain which was purchased by my Dad, Paul E. Martin and Mother Berta J (Lemons) Martin in 1956. I grew up going to school in Vale and was raised with a definite "work ethic," an appreciation of nature, and learned that natural resource management is the determining factor for success in production of crops and livestock. I realized early on that outside influences, namely day to day weather variability and seasonal growing conditions, will determine the success or failure of Ag production and the economic sustainability for the year.

My Father's knowledge, with his experience of the challenges in the variability and spontaneity of year to year conditions, instilled in him a heartfelt conservation belief in that the Human Element (Ranchers) are the most likely and best Stewards of the sage-bunchgrass steppe environment. It was my blessing (didn't necessarily think so at the time!) to help him to install rock/juniper barricades in the incised, intermittent Creeks, to slow and lift the early season runoff water. The beneficial results were soon apparent. These rock and juniper barricades trapped sediment and lifted the water table causing moisture to saturate adjoining soils and widen the green zone (now called Mesic areas). I saw late season green-up of desirable grass/forbs/willows and Aspen regeneration. It was, and still is amazing to witness how fast the uplift in Holistic ecosystem improvement occurs. It is personally inspiring and exciting to implement conservation enhancements, and see the amazing multiple, beneficial environmental and production results!

So, that narrative brings me to expressing my appreciation for being a member in the Baker Local Implementation Team (LIT). This is a group of individuals with multiple backgrounds, representing different entities, along with varying interests, that are coming together to assist in helping improve Sage-Grouse habitat, by bridging and connecting between Private Land-owner's and public/governmental land Managers. Although the primary focus is "The Bird", in reality the landscape improvements are definitely multifaceted, bringing an array of real, on the ground, positive outcomes! These are some of the reasons that I consider it an honor to be part of this energetic and enthusiastic Team! I also encourage those that may be a bit skeptical of what we're doing, to find out more of what our Mission and Purpose is about. I'll wager you'll be interested and like what you see.
Sincerely,
Curtis W. Martin

_____

If you are interested in learning more about the Prineville LIT, please contact Julie Unfried, LIT Coordinator, at (541) 668-1066 or junfried@pheasantsforever.org

Julie Unfried, Sage-grouse LIT Coordinator

Weed-Suppressive Bacteria

Weed-Suppressive Bacteria, or WSB, are bacteria strains of the soil bacterium *Pseudomonas flourescens* (D7, ACK55, and MB906) developed and marketed as a natural way to control exotic grasses, such as cheatgrass. In the late 1900s and early 2000s, scientists began experiments that looked for biological ways to selectively eliminate or inhibit growth of exotic annual grasses.

Forest and Rangeland Ecosystem Science Center

Weed-Suppressive Bacteria, or WSB, are bacteria strains of the soil bacterium *Pseudomonas flourescens* (D7, ACK55, and MB906) developed and marketed as a natural way to control exotic grasses, such as cheatgrass. In the late 1900s and early 2000s, scientists began experiments that looked for biological ways to selectively eliminate or inhibit growth of exotic annual grasses.

Does WSB work?

The answer has been "No" across a wide range of field and potted soil conditions and WSB application methods, to date. WSB trials in laboratory studies, specifically petri dishes, have also shown mixed results. WSB was developed to target invasive weeds with minimal impact to non-target plant species, such as native or agriculturally important plants. Testing and trials of WSB have been conducted independently by USGS and many other scientists and land managers across semiarid areas of the western U.S. WSB strains or products tested include D7, ACK55, and soil amendment MB906.

What problem is WSB trying to solve?

Invasive annual grasses, such as cheatgrass (*Bromus tectorum*) and medusahead (*Taeniatherum caput-medusae*), are one of the most significant stressors to rangeland ecosystems in the western U.S. Cheatgrass and medusahead have origins in Europe or Eurasia and the Mediterranean region. Both species were introduced to North America in the mid- to late-1800's as a contaminant in seed and straw. They both germinate in fall or early spring, grow rapidly, and produce lots of seeds, making them highly competitive with western native rangeland species. Once established, they are very difficult to eliminate.

Why do these species matter?

Medusahead, and cheatgrass in later stages of growth, are unpalatable to grazing livestock and can cause injury as well. Both grass species create a thick thatch when they dry out and die in the summer. This thatch creates a continuous "carpet" that prevents native plant revegetation and is very flammable wildfire fuel.

What are the specific findings?

Special Journal Issue Focuses on Weed-Suppressive Bacteria

A special issue of Rangeland Ecology and Management focused on weed-suppressive bacteria and includes reports from five trails of WSB that collectively provide a spatially and temporally robust test of WSB in the western U.S. None of the five studies detected consistent effects of WSB. An introductory article summarizes the findings.

Germino, M.J., Lazarus, B.E., 2020, Synthesis of weed-suppressive bacteria studies in rangelands of the western USA-A special section of articles in Rangeland Ecology and Management provides a unified perspective: Rangeland Ecology and Management, p. online, https://doi.org/10.1016/j. rama.2020.02.007.

Weed-Suppressive Bacteria Fail to Control Bromus Tectorum

Researchers tested effects of ACK55 and D7, two weed-suppressive bacteria strains of *P. fluorescens*, on cheatgrass both in the laboratory and at field sites in Montana and Wyoming. The bacteria strains reduced cheatgrass germination and root and shoot lengths in Petri-plates but had no effect on plants during field experiments. Findings contribute to growing evidence that these strains do not reliably control cheatgrass in the Northern Great Plains, Central Rocky Mountains, and elsewhere.

Reinhart, K.O., Carlson, C.H., Feris, K.P., Germino, M.J., Jandreau, C.J., Lazarus, B.E., Mangold, J., Pellatz, D.W., Ramsey, P., Rinella, M.J., Valliant, M., 2019, Weed-suppressive bacteria fails to control Bromus tectorum under field conditions: Rangeland Ecology and Management, p. online, https://doi. org/10.1016/j.rama.2019.07.006.

Continued on next page

Continued from previous page

Weed-Suppressive Bacteria have no Effect on Exotic or Native Plants in Sagebrush Steppe
USGS researchers evaluated the effects of two strains of *P. fluorescens* - D7 and MB906 - on exotic annual grasses at three sagebrush steppe sites with contrasting soils and climate. Neither bacteria strain affected exotic annual grasses, perennial bunchgrasses, or total community cover, either applied alone or in combination with herbicides or discing. Results indicate a low likelihood of these strains to reduce annual grasses.

Germino, M.J., Lazarus, B.E., 2019, Weed-suppressive bacteria have no effect on exotic or native plants in sagebrush-steppe: Rangeland Ecology and Management, p. online, https://doi.org/10.1016/j.rama.2019.10.004.

Weed-Suppressive Bacteria Did Not Control *Bromus Tectorum*
USGS and USFWS researchers tested the ability of a bacterial bioherbicide known as D7 to control cheatgrass in south-central Washington. D7 applied as a spray or seed mixture did not significantly affect cover, biomass, or density of cheatgrass. This negative result can be useful to document D7's effectiveness at different rangeland sites.

Pyke, D.A., Shaff, S.E., Gregg, M.A., Conley, J.L., 2019, Weed-suppressive bacteria applied as a spray or seed mixture did not control Bromus tectorum: Rangeland Ecology and Management, p. online, https://doi.org/10.1016/j.rama.2019.11.001.

Bacterial Soil Amendment MB906 Shows Inconsistent Control of Invasive Annual Grasses
To accurately assess responses of both native and non-native grasses, land managers applied MB906 – a weed-suppressive bacteria – alone and in combination with the herbicide imazapic on sagebrush-steppe landscapes that burned several months prior. MB906 did not consistently reduce target invasive annual grass cover at the sites studied in the three years following treatment, although moderate effects on target annual grass cover suggest further investigation may be warranted.

Lazarus, B.E., Germino, M.J., Brabec, M.A., Peterson, L., Walker, R.N., Moser, A.M., 2020, Post-fire management-scale trials of bacterial soil amendment MB906 show inconsistent control of invasive annual grasses: Rangeland Ecology and Management, p. online, https://doi.org/10.1016/j.rama.2020.03.005.

Weed-Suppressive Bacteria Effects Differ in Culture Compared to in Soils
Researchers evaluated the effectiveness of WSB grown in soil vs. agar culture, and tested how soil sterilization and WSB concentration inhibited growth of invasive annual grasses. Sterilization had no effects on WSB effectiveness and were only partially selective for target weeds at low concentration. WSB applied at high concentration inhibited both invasive and native grass growth in agar cultures. Results suggest the desired effect is not reproducible for plants in soil, even when competing microbes are removed.

Lazarus, B.E., Feris, K.P., Germino, M.J., 2020, Weed-suppressive bacteria effects differ in culture compared to in soils and with or without microbial competition and separation of active ingredient: Biological Control, v. 152, p. 10442, https://doi.org/10.1016/j.biocontrol.2020.104422.

Where can I learn more?
Weed-Suppressive Bacteria – Testing a Control Measure for Invasive Grasses in the West
https://www.usgs.gov/centers/fresc/science/weed-suppressive-bacteria-testing-a-control-measure-invasive-grasses-west

Cheatgrass and Medusahead https://www.usgs.gov/centers/fresc/science/cheatgrass-and-medusahead

Want a copy of a publication?
Send an e-mail to fresc_outreach@usgs.gov with the citation or call (541) 750-1030.

Who to contact?
Matthew Germino, Supervisory Research Ecologist
Forest and Rangeland Ecosystem Science Center
Office: (208) 426-3353
Mobile: (208) 221-4638
mgermino@usgs.gov
https://www.usgs.gov/staff-profiles/matthew-j-germino
https://www.usgs.gov/fresc

Debbie Wood, Crooked River Weed Management Area

Manure Exchange Program

The Manure Exchange Program is a community resource, connecting local farmers who have excess manure on their farm with local gardeners, landscapers or anyone who needs manure to improve soil health on their lands. The program is a simple **FREE** way to recycle valuable nutrients and organic matter. Find out more at www.deschutesswcd.org

Todd Peplin, Programs Lead/Planner, DSWCD

Are You Eligible for Assistance Through the Coronavirus Food Assistance Program 2?

Signup for the Coronavirus Food Assistance Program 2 (CFAP 2) began on Sept. 21, 2020 and will continue through Dec. 11, 2020. CFAP 2 provides eligible producers with direct financial assistance due to market disruptions and associated costs because of COVID-19.

Many more commodities are eligible for CFAP 2 than CFAP 1. Our new, easy-to-use CFAP 2 Eligible Commodities Finder makes finding payment rates specific to your operation simple. Go to https://www.farmers.gov/ for more information.

Scott Duggan

Calendar

Please contact event holder to verify if event is cancelled/rescheduled

October	
20	OSU Beef Cattle Working Group – Fall Webinar Series (see article)
20-22	Oregon Vegetation Management Association Conference. CANCELLED
22	Solutions to Parasites Webinar (see article)
22	PSEP Forestry & Natural Resources Series 1 of 2 (see article)
27	OSU Beef Cattle Working Group – Fall Webinar Series (see article)
27	Home on the Range webinar series. (see article)
29-30	Oregon Society of Weed Science Annual Meeting. CANCELLED
November	
	Willamette Valley Ag Show CANCELLED
3	Home on the Range webinar series. (see article)
4	The Western Meat School (see article)
4	PSEP Forestry & Natural Resources 2 of 2 (see article)
4	Oregon Wheat Virtual Shop Talk (see article)
5	OSU Beef Cattle Working Group – Fall Webinar Series (see article)
10	OSU Beef Cattle Working Group – Fall Webinar Series (see article)
17	OSU Beef Cattle Working Group – Fall Webinar Series (see article
18	Oregon Wheat Virtual Shop Talk (see article)
18	PSEP Willamette Valley Course 1 of 2 (see article)
19	PSEP Willamette Valley Course 2 of 2 (see article)
20	Oregon Hay and Forage Association Fall Forage Day. Cancelled? Virtual? TBD
21	Oregon Hay King Contest CANCELLED
21	Developing Workforce Talent (see article)
25	Oregon Wheat Virtual Shop Talk (see article)
26	Thanksgiving Holiday
December	
30-3	Tri-State Grains Conference (see article)
30-4	Irrigation Show & Education (Virtual) Conference. www.irrigation.org.
1	Oregon Wheat Growers' League Annual Meeting (see article)
2	OR Non-Ag CORE Series 2 of 2 (see article)
2-4	Hermiston (Virtual) Farm Fair. Hermiston, OR
9	PSEP Agriculture CORE Course (see article)
16-17	Far West Winter Conference (see article)
January	
16	Lambing School (see article)
27-29	PNW Ag Show (Virtual). www.northwestagshow.com

OSU Crook County Extension
498 SE Lynn Blvd
Prineville, OR 97754
Phone: (541) 447-6228

Oregon State University