



GROWING

Extending Knowledge and Changing Lives in Linn and Benton Counties

Volunteers Critical to Success of Linn, Benton Fairs



4-H Leader Kerenza Martin helps 4-H member Erin Olson check her equipment before her show at the Benton County Horse Pre-Fair.

By Mitch Lies,
GROWING Editor

Kathy Growcock started volunteering at the Linn County Fair when her son was 12, and participating in 4-H.

Her son is now 43, and she's still there.

Growcock is among the more experienced volunteers who help out at the Linn and Benton county fairs each year, said Andrea Leao, Linn County Extension 4-H Youth Development Faculty, but all are important. "Each one of our volunteers have their unique place as to how they help the whole system work," Leao said.

Without them, in fact, there would be no 4-H presence at the fair, Leao said.

"The volunteers lead the entire process," Leao said. "They start meeting with the youth in October, work with them all the way through their projects, then coordinate and run the shows at fair."

"Many of them take their week vacation from their jobs and spend it at the fair helping the youth," Leao said.

"It is definitely a big commitment," said Carolyn Ashton, 4-H Youth Development Faculty for Benton County. "Our volunteers run the shows, help prepare the youth for all of their shows and exhibits. We couldn't do it without them."

In all, more than 250 volunteers donate their time and services to the Linn County Fair and Benton County Fair and Rodeo each summer, logging thousands of hours, including many long days.

"In the case of livestock, they are in the barns no later than 7 in the morning, and they usually don't leave until 9 at night. And they camp over the whole time. Those are some long hours that they are there to support the youth of the county," Leao said.

"Ten and twelve-hour days are pretty typical," said Ashton of the Benton County Fair. "Our show days start at 8 a.m. and sometimes don't end until 8 p.m. So, with all of the prep and clean-up, those are some pretty long days. And, many of our volunteers stay at the fair."

"They do all of this because they care about

the kids and the program and want the kids to have a positive experience," Ashton said.

Among other functions, Growcock serves as the Linn County Fair's 4-H camping superintendent and superintendent of the fair's open class beef show.

"I wear a lot of different hats," she said, adding that she spends more than a week at the fair each year.

"I park my pickup on Sunday afternoon or evening," she said, "and I don't see it again until the next Sunday morning. From Friday before fair to the Sunday morning after the fair, all I do is fair."

While 4-H is most synonymous with volunteers, other programs rely on volunteers, as well, including the OSU Extension's Master Gardener program.

Brooke Edmunds, community horticulture agent for Extension in Linn and Benton counties, said that between 20 and 30 Master Gardeners donate their time and services to the two fairs each year, and reach hundreds of people.

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INSIDE: Check out the Linn and Benton County 4-H pages to see the upcoming fair schedules.

Who We Are

The Oregon State University Extension offices in Linn County and Benton County offer practical, lifelong learning experiences. We sponsor conferences, workshops, demonstrations, tours, and short courses. We recruit, train and manage volunteers who assist us with community outreach and education. Our Extension faculty and volunteers answer questions and give advice by phone, in person, through e-mail, and on our Websites. We provide brochures and flyers with specific information on a variety of subjects. We are funded by a cooperative partnership between Oregon State University, the U.S. Department of Agriculture, and our local counties.

Office locations and hours

The Benton County office is located at 4077 SW Research Way in Corvallis. Office hours are 8 a.m. until 5 p.m. Monday through Friday. Telephone: 541-766-6750. Fax: 541-766-3549. <http://extension.oregonstate.edu/benton>.

The Linn County office is located at 33630 McFarland Rd (on the corner of Old Highway 34 and McFarland Road), in Tangent. Office hours are from 8 a.m. to 5 p.m., Monday through Friday. Phone 541-967-3871. Seed Certification phone 541-967-3810. <http://extension.oregonstate.edu/linn>.

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Benton County 4-H Youth Development	Elli Vanderzanden	541-766-6750
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Livestock & Forages*	Shelby Filley	541-672-4461
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* Multi-county assignment

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Office manager & Linn County Leader	Michele Webster	541-248-1087
Seed certification	Doug Huff	541-967-3810
Seed certification	Tom Manning	541-967-3810

Administration and program support serving Benton County

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GROWING editor	Mitch Lies	541-967-3871

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Oregon State University
Extension Service

OSU Extension Welcomes New West Central Regional Director

Richard Riggs, of West Salem, has recently been selected to serve as Oregon State University Extension's West Central Regional Director. He began his duties on May 25. The West Central Region is comprised of Marion, Polk, Yamhill, Linn, and Benton counties. Lane County will also join the region July 1.

Richard has held leadership and operations positions for the Oregon Department of Education's Early Learning Division, Oregon Department of Geology and Mineral Industries (DOGAMI) and Director of Operations to OSU's Colleges of Science and Liberal Arts. As an instructor of Political Science at Western Oregon University, Rich teaches PS 458, focusing on combat veterans and their families as both groups struggle with Post Traumatic Distress Disorder and moral injuries that affect their daily lives.

Prior to ELD and WOU, Rich was Assistant Director for the Oregon Dept. of Geology and Mineral Industries (DOGAMI)

charged with the regulation of mining activities across Oregon, coordinated DOGAMI's legislative efforts, and worked with the State Environmental Justice Task Force. With a dedication to service, Rich served five years as an elected board member for Chemeketa Community College, representing constituents across the mid-Willamette Valley, and 20 years with the US and Canadian Navies. Among Rich's many roles in the Navy were serving as a senior staff officer at Canada's Maritime Forces Pacific Headquarters, where he coordinated maritime security preparedness across Puget Sound during the lead up to the 2010 Winter Olympics. He served as a training officer overseeing more than 250 civilian and navy instructors who provided an accredited STEM curriculum to thousands of students annually.

As an OSU alum, Rich holds a bachelor of science in mathematics and a Juris Doctorate from



Richard Riggs

Willamette University. He is an active member of the Oregon State Bar Association and he holds a graduate certificate from the Air Force Command and Staff College. As a native Oregonian, Rich brings to the role an appreciation and connection to each of the counties in the region and is a trained Master Gardener volunteer.

The first couple of months, Richard will be busy getting out to the counties to meet faculty, staff and stakeholders. Please help us in welcoming Richard to OSU Extension, we are excited to have him on board. Richard can be reached at richard.riggs@oregonstate.edu.



Join us to welcome

Richard "Rich" Riggs,
new Regional Director for the
OSU Extension Service Mid-Central Region

Friday July 20, 2018
9:00-11:00AM

Benton County Sunset Building
4077 SW Research Way , Corvallis

Reception will include coffee & light snacks






Brooke Edmunds
541-730-3470
brooke.edmunds@oregonstate.edu



Elizabeth Records
541-730-3471
elizabeth.records@oregonstate.edu

Community Horticulture

More FREE Class Opportunities

The OSU Extension Linn County Family Community Health and Home Horticulture programs are teaming up to bring you two free classes at the Albany Senior Center.

- **August 16, 10-11:30 a.m.**, Tomato variety show & tell (& tasting!) and preserving the harvest.
- **September 13, 10-11:30 a.m.**, Growing herbs & making herb-flavored vinegars.

Each class will include demonstrations and food sampling. Registration is through Albany Parks & Recreation: <https://www.cityofalbany.net/departments/parks-and-recreation> There is no cost to register.

Class on Fall & Winter Gardening offered

- **Tuesday, July 17, 10-11 a.m.**, at the LBCC Veterans Garden on the Albany campus (just west of Luckiamute Building).

Join Brooke Edmunds at the LBCC Veterans Garden for an informative class to learn what vegetables to plant in July for a fall, winter, and even spring bounty. This hands-on demonstration will cover seeding of common cool-season veggies like broccoli, carrots, kale, and more. This is a FREE class and everyone is welcome.

July-August Gardening Calendar for Western Oregon

The Oregon State University Extension Service encourages **sustainable gardening practices**.

Preventative pest management is emphasized over reactive pest control. Always identify and monitor problems before acting and opt for the least toxic approach that will remedy the problem. The conservation of biological control agents (predators, parasitoids) should be favored over chemical controls.

Use chemical controls only when necessary and only after thoroughly reading the pesticide label. First consider cultural, then physical and biological controls. Choose the least-toxic options (insecticidal soaps, horticultural oils, botanical insecticides, and organic and synthetic pesticides — when used judiciously).

Trade-name products and services are mentioned as illustrations only. This does not mean that the Oregon State University Extension Service endorses these products and services or intends to discriminate against products and services not mentioned.

For additional OSU Extension gardening information, visit: <http://extension.oregonstate.edu/gardening>

Elizabeth Records Joins Linn, Benton Extension

Elizabeth Records recently joined the Linn & Benton County Master Gardener program as the new volunteer coordinator. She also works behind the scenes with the statewide Ask an Expert program.

Elizabeth is an OSU alum with a B.S. in Natural Resources. Previously she worked with Greenbelt Land Trust as a land steward and volunteer

coordinator. Elizabeth and her spouse cultivate a 3,000 square foot home garden with more than 100 vegetable cultivars. Says Elizabeth: “I believe there is no single right way to garden, but that there is an ever-evolving best way for each individual gardener.”

Elizabeth also enjoys gardening with native plants, food preserving, brewing honey wine and pressing cider.



Elizabeth Records

July

Maintenance and Clean Up

- If green lawn is desired, frequent watering is necessary during periods of heat and drought stress. Irrigate 0.25 inches four to six times per week from June through August. Measure your water use by placing an empty tuna can where your irrigation water lands.
- Mound soil up around base of potatoes. Gather and eat a few “new” potatoes from each hill, when plants begin to flower.
- Early morning is the best time to water vegetable and flower gardens to reduce evaporation. Water the soil, rather than leaves to reduce disease. Water deeply and infrequently to encourage root growth.

Continued on Page 4

Our stunning gardens provide the perfect backdrop as you wander through all the beautiful arts & crafts from over 40 local artists, all the while enjoying great wine and live music!

Free to the public!

Wine, food, arts and crafts for purchase.

July 28th & 29th

10am - 4pm

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ART & WINE
in the
Garden



- Hanging baskets of flowers or vegetable plantings need careful attention to watering and feeding during extended periods of hot weather.
- Weed and fertilize rhubarb and asparagus beds. A mulch of compost or rotted cow manure works well as fertilizer. Water deeply to develop crowns for next year.
- Mulch to conserve soil moisture with paper, plastic, sawdust, etc.
- Stake tall-growing flowering plants such as delphinium, hollyhocks, and lupine. Stake tomatoes, as necessary.
- Make compost of lawn clippings and garden plants that are ready to be recycled. Do not use clippings if lawn has been treated with herbicide, including “weed-and-feed” products. Do not compost diseased plants unless you are using the “hot compost” method (120 degrees to 150 degrees Fahrenheit).

Planting/Propagation

- If needed, fertilize rhododendrons and azaleas with acid-type fertilizer. If established and healthy, their nutrient needs should be minimal. Remove spent blossoms.
- When selecting new roses, choose plants labeled for resistance to diseases. Fertilize roses and control rose diseases such as mildew with a registered fungicide.

Planting/propagation

- Midsummer plantings of beets, bush beans, carrots, cauliflower, broccoli, lettuce, kale, and peas will provide fall and winter crops.
- Dig spring bulbs when tops have died down; divide and store or replant.

Pest Monitoring and Management

- Control hollyhock rust by sanitation, picking affected leaves, or spraying with a registered fungicide. Read and follow label directions.
- Watch for cutworm damage in garden. In July, climbing cutworms become a problem and large portions of foliage will begin to disappear on established plants. Use barriers, remove by hand, use beneficial nematodes when soil temperature is above 55 degrees Fahrenheit, or spray with Bt-k according to label directions.
- **Late July:** Begin to monitor for early and late blight on tomatoes.
- Place traps to catch adult apple maggot flies. You can use pheromone traps to monitor presence of pests.
- **July 10:** Spray filbert trees for filbertworm, as necessary.
- **July 10-15:** Spray peach and prune trees for peach tree borer, and peach twig borer, as necessary.
- **July 17-23:** Third spray for codling moth in apple and pear trees, as necessary.
- Cover blueberry bushes with netting to keep birds from eating the entire crop.
- Watch for early and late blight on tomatoes. Correct by pruning for air circulation, picking off affected leaves, and/or treat with approved fungicide.
- Monitor camellias, holly, and maple trees for scale insects. Treat if necessary.

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Local Master Gardeners Win Statewide Honors



Janet Magedanz



Sally Elliot



Carolyn Larime



Pam Nelson

The Benton County Master Gardener Association (BCMGA) and Linn County Master Gardener Association (LCMGA) are part of the Oregon Master Gardener Association, a state wide non-profit organization. Each year the OMGA honors outstanding Master Gardeners from each county in Oregon.

2018 Benton County Master Gardener of the Year - Janet Magedanz

Janet has been dedicated to the Benton County Master Gardeners Association for the past six years. She has served as the board president, which is a three-year commitment. She has chaired the Gearing Up For Gardening committee for several years. For the past three years, she has been the Registrar for another keystone event for Benton County; Insights into Gardening. Janet has been a one-woman propagation committee for the past several years. In addition, she has performed the Annual Financial Review of BCMGA for 2017. This fulfills a key function for any non-profit and takes a substantial investment of Janet's time and, luckily for us, her professional expertise.

2018 Benton County Behind the Scenes Master Gardener - Sally Elliot

Since becoming a Master Gardener in 2015, Sally has been someone that has always

been there to support the Association. She served on the Board of Directors as the Membership Secretary for two years. She is an active volunteer for the plant sale, working in the dig and divides, greenhouse and several tasks at the plant sale itself. She has been an active participant with the Demo Gardens since she was a trainee. Sally never avoids the less glamorous tough jobs such as weeding, pruning, hauling away garden waste and spreading mulch. She is a dependable, hard-working and enjoyable volunteer who truly exemplifies the Master Gardener volunteer.

2018 Linn County Master Gardener of the Year - Carolyn Larime

Carolyn has been an active Master Gardener since she finished completing her training in 2015. She is one of two Master Gardeners responsible for starting the Willamette Community Garden in Albany, Oregon, and has devoted many hours working to keep the garden functioning. She spends several hours each day at the garden, instructing gardeners while all the while maintaining the garden. Every year she helps to plan, organize, promote, and grow the majority of plants for a plant sale that supports the

garden. As part of the garden plan, a bed is located outside the fenced area so that people walking the nearby path (mainly homeless persons) can access fresh fruits and vegetables. Carolyn is currently serving as a Member at Large Linn County Master Gardeners Board and is part of the planning committee for our chapter's annual Pollinator Conference.

2018 Linn County Behind the Scenes Master Gardener - Pam Nelson

Pam has been a Master Gardener since 2015 and has been diligently working behind the scenes to make our program successful ever since. Pam understands the core mission of the Master Gardener program and always seems to have a smile on her face. She is instrumental in organizing our booth at the Albany Farmers Market. She has taken on the responsibility of soliciting volunteers, scheduling them and then following up to be sure each volunteer shows up as scheduled and that volunteers receive volunteer hours for the Albany Farmers Market. She is also serving on the LCMGA Board with increasing responsibilities.

Congratulations to all of these outstanding volunteer Master Gardeners!

Lebanon Second Monday Lunchtime Gardening Series

Presented by the Linn County Master Gardeners and the
Lebanon Garden Club

SECOND MONDAY OF EACH MONTH FROM NOON - 1:00 PM
AT THE LOBBY: 661 S MAIN ST. LEBANON FREE!

July 9: Growing Coffee and Tea with Brock Byers of The Lobby

August 13: Garden Ergonomics with Master Gardener Karin Magnuson

September 10: Tomatoes! With Lisa Almarode of Fairweather Farms

**October 8: Planting Shrubs for Year-Round Interest with Trudie Bason of
Timeless Gardens**

November 12: Topic TBD with Pat Gruebele of Green Thumb Nursery

December 10: Composting 101 with Master Gardener, Larry Steele



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services, activities, and materials.*



PHOTO PROVIDED BY BROOKE EDMUNDS

In June, the Oregon Veterans Home in Lebanon (OVHL) hosted a dedication of its beautiful Community Garden. The garden is located on the north end of campus and has been adopted by the students of Comp NW for their coursework, and also for the benefit of our veteran residents.

Special thanks to OSU Extension Master Gardener and Comp NW Community Service member, Sheryl Casteen. Thanks to the many other Linn County Master Gardeners for their hard work, and the Northwest Steelheaders who volunteered their time by putting a hard surface down for those in wheelchairs to more easily access the garden.

Garden Calendar continued from Page 4

- Monitor rhododendrons for adult root weevils. Look for fresh evidence of feeding (notching). Try sticky trap products on plant trunks to trap adult weevils. Manage root weevils with beneficial nematodes (if soil temperature is above 55 degrees Fahrenheit). If root weevils are a consistent problem, consider removing plants and choosing resistant varieties
- Spider mites can become a problem on ornamental plants, vegetables, and fruit plants during hot, dry weather. Watch for dusty-looking foliage, loss of color, and presence of tiny mites. Wash infested areas with water or spray with appropriate pesticides.
- Continue monitoring raspberry, blackberry, blueberry, cherry and other plants that produce soft fruits and berries for Spotted Wing Drosophila (SWD). If SWD are present, use an integrated and least toxic approach to manage the pests. Learn how to monitor for SWD flies and larval infestations in fruit.
- Check leafy vegetables for caterpillars. Pick off caterpillars as they appear. Use Bt-k, if necessary.
- Remove cankered limbs from fruit and nut trees for control of diseases such as apple anthracnose and bacterial canker of stone fruit. Sterilize tools before each new cut.

August

Planning

- Optimal time for establishing a new lawn is August through mid-September.
- Dampwood termites begin flying late this month. Make sure your home is free of wet wood or places where wood and soil are in contact.

Maintenance and clean up

- Make compost of lawn clippings and garden plants that are ready to be recycled. Don't use clippings if lawn has been treated with herbicide, including "weed-and-feed" products. Don't compost diseased plants unless you are using the "hot compost" method (120 degrees to 150 degrees Fahrenheit).
- Fertilize cucumbers, summer squash, and broccoli to maintain production while you continue harvesting.
- Clean and fertilize strawberry beds.
- Use mulch to protect ornamentals and garden plants from hot weather damage. If needed, provide temporary shade, especially for recent plantings.
- Camellias need deep watering to develop flower buds for next

Continued on Page 8



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Six important things to know before disaster strikes

“Disasters don’t plan ahead. You Can.”

“Floods are the most common and costly natural disaster”

- Know where your gas shutoff valve is located, and how it works
- Know where your electrical shut off is, and how it works
- Make an emergency communication plan and share it with your family
- Make sure you have insurance, and know what it covers
- Plan for your pets
- Know your evacuation routes. Minutes matter.

For more details on each of these items, see the short video with your family at: <https://www.fema.gov/media-library/assets/videos/159970>

Heat Is Worse for Older Adults

Older adults do not adjust as well as young people to sudden changes or extremes in temperature. They are more likely to have a chronic medical condition that changes normal body responses to heat. They are also more likely to take prescription medicines that affect the body’s ability to control its temperature or sweat.

Be sure to stay cool and stay hydrated no matter what your age!

- Stay in air-conditioned buildings as much as possible. If your home doesn’t have air conditioning, contact your local health department or locate an air-conditioned shelter in your area.
- Do not rely on a fan as your main cooling source when it’s really hot outside.
- Drink more water than usual and don’t wait until you’re thirsty to drink.
- If your doctor limits the amount of fluids you may drink, or has you on water pills, ask them how much you should drink during hot weather.
- Don’t use the stove or oven to cook—it will make you and your house hotter.
- Avoid hot and heavy meals.
- Wear loose, lightweight, light-colored clothing.
- Take cool showers or baths to cool down.
- Do not engage in very strenuous activities and get plenty of rest.
- If you must go outdoors, protect yourself from the sun and prevent sunburn.
- Check on a friend or neighbor and have someone do the same for you.
- Seek medical care immediately if you have, or someone you know has, symptoms of heat-related illness like muscle cramps, headaches, dizziness, confusion, fainting, nausea, or vomiting.

Source: [cdc.gov/disasters/extremeheat](https://www.cdc.gov/disasters/extremeheat)

Emergency Water Storage

Recent events remind us that having at least some water in storage is a good idea. The potential cyanotoxins created by an algae bloom in Salem’s water supply are not removed or destroyed by filtering, boiling, or chlorinating. While the water was declared safe for handwashing, bathing, laundry and gardening; only water that was stored before the contamination, commercially bottled, or from a private well that is being tested annually for safety, should be used for drinking, cooking, and canning.

Here are guidelines for water storage in your home:

- Store at least one gallon of water per person for three days, for drinking and sanitation. A normally active person needs about

A good idea is to keep containers of water in the empty space in your freezer. This will help keep your freezer cold longer if the power is out. The frozen containers of water can also be used for ice packs and drinking water in your cooler when you camp out.



MFP Diane shares information about safe water storage.

three quarters of a gallon of fluid daily, from water and other beverages.

However, individual needs vary, depending on age, health, physical condition, activity, diet, and climate.

- Buy commercially bottled water and store it in the sealed original container in a cool, dark place. Or prepare your own containers of water. Use

food grade water storage containers. Before filling with chlorinated water (from a tested public water supply), thoroughly clean the containers with liquid dishwashing soap and sanitize the bottles by rinsing with a solution of 1 teaspoon of non-scented liquid household chlorine bleach to a quart of water. Water that has not been commercially bottled should be replaced every 6 months.

For more information, including how to treat suspicious water after you have used up what you have in storage, see <https://www.ready.gov/water>.

Emergency Preparedness Supply Check-up and Inventory

If you have made an effort to store water, food, supplies, and equipment for a disaster, have you checked your stash lately? During warm, dry weather, is a good time to take items out of storage to check for insect, rodent, and mold infestations. Mice can chew through mylar packages and trapped moisture allows mold growth, which decays fabrics and papers, neither of which you would want to discover when you have an emergency and are planning on using your supplies. It is also a good idea to inventory your supplies so you know what items have been added or removed over time.



Congratulations to the new 2018 Linn/Benton County Master Food Preservers. Join this enthusiastic bunch for hands-on canning classes this summer. <https://extension.oregonstate.edu/linn/announcements/2018-food-preservation-classes>



MFP Cindy helps Benny Beaver learn about summer food safety at Get Outdoors Day.

Hands-on Food Preservation Classes in Lyons

Master Food Preservers from Linn and Marion Counties are joining together to offer a series of hands-on food preservation classes at the Santiam Valley Grange in Lyons this summer. These will be on Saturdays from 9 a.m. to noon. These classes are great for beginning food

preservers or as a refresher for experienced canners.

- **June 23.** Making fruit syrups, jams, and jellies.
- **July 28.** Canning fruits and pie fillings, dehydrating fruits and fruit leathers.
- **August 18.** Pressure canning vegetables, meats and fish

- **September 22.** Pickling and fermentation.

Cost is \$15 per class, all supplies are included. For more information and to save a spot, contact Diane Hyde at 503-859-2517. The grange is located at 1140 5th Street in Lyons.



Master Food Preservation volunteer Ann Capps helps serve up flavored cucumber and lemon water at the Get Out Doors Day event June 2.

Easy Flavored Water for Groups

Visit Foodhero.org for MORE quick, tasty, healthy recipes and helpful tips to feed your family.

Flavors	Ingredients/ 1 gallon water	Preparation
Cucumber	1/2 cucumber	Slice crosswise into thin slices. Leave skin on for color
Citrus- lemons, oranges, limes, grapefruit	2 small or 1 large	Slice thinly in whole circles or quarter wedges. Leave skin on for added color and flavor.
Herb - mint, basil, rosemary	10 small leaves or a small sprig	Tear or crush the leaves to release the flavor.

Preparation tips:

- To save refrigerator space and make the water easier to transport, you can prepare the recipe using half the recommended amount of water. Refrigerate. Add the remaining cold water (add ice, if desired) just prior to servings.
- Trim away any damaged or bruised areas on produce before adding to water.
- Mash the fruit to release the most flavor. Solution: seeds or mashed fruit can clog water dispenser spigots.
- Refrigerate for several hours or overnight to allow the most flavoring.
- Produce from the water can be used as garnish in drinking cups.
- Water will last up to 3 days in the refrigerator.

spring.

- Prune raspberries, boysenberries, and other caneberries after harvest. Check raspberries for holes made by crown borers, near the soil line, at base of plant. Remove infested wood before adults emerge (approximately mid-August).
- Monitor garden irrigation closely so crops and ornamentals don't dry out.
- If green lawn is desired, frequent watering is necessary during periods of heat and drought stress. Irrigate 0.25 inches four to six times per week from June through August. Measure your water use by placing an empty tuna can where your irrigation water lands.
- Prune out dead fruiting canes in trailing blackberry and train new primocanes prior to end of month.
- Prune cherry trees before fall rains begin to allow callusing in dry weather. This will minimize the spread of bacterial canker.

Planting/propagation

- Plant winter cover crops in vacant space in the vegetable garden.
- Plant winter kale, Brussels sprouts, turnips, parsnips, parsley, and Chinese cabbage.
- Mid-summer planting of peas; use enation-virus-resistant varieties, plant fall crops of cabbage, cauliflower, and broccoli.
- Plant cauliflower, broccoli, Brussels sprouts, spinach, turnips, and parsnips.

Pest monitoring and management

- Remove cankered limbs from fruit and nut trees for control of diseases such as apple anthracnose and bacterial canker of stone fruit. Sterilize tools before each new cut.
- Check apple maggot traps; spray tree if needed.
- Control yellow jackets and wasps with traps and lures as necessary. Keep in mind they are beneficial insects and help control pest insects in the home garden.
- First week: If necessary, spray for walnut husk fly.
- First week: If necessary, second spray for peach tree borer and/or peach twig borer.
- First week: If necessary, second spray of filbert trees for filbertworm.
- Check for root weevils in ornamental shrubs and flowers; codling moth and spider mite in apple trees; scale insects in camellias, holly and maples. Treat as necessary.
- Watch for corn earworm on early corn. Treat as needed.
- For mite control on ornamentals and most vegetables, hose off foliage, spray with approved miticide if necessary.
- Check leafy vegetables for caterpillars. Pick off caterpillars as they appear. Use Bt-k, if necessary.
- Continue monitoring peaches, plums, prunes, figs, fall-bearing raspberries and strawberries, and other plants that produce soft fruits and berries for Spotted Wing Drosophila (SWD). If SWD are present, use an integrated and least toxic approach to manage the pests. Learn how to monitor for SWD flies and larval infestations in fruit.
- Corn may need protection from earworm. Spray new silks with appropriate pesticides if necessary.

Canning NOT Recommended in Electric Multi-cookers, Multi-pots

Even if there are instructions for pressure canning in the manufacturer's directions, we do not support the use of the USDA canning processes in the electric, multi-cooker appliances now containing "canning" or "steam canning" buttons on their front panels. Our pressure process directions have not been



developed for that type of appliance, and the canner being used does matter. Our recommendations were determined for stovetop pressure canners, which hold four or more quart-size jars standing upright. We do not know if proper thermal process development work has been done in order to justify the canning advice

that is distributed with these pressure multi-cooker appliances. What we do know is that our canning processes are not recommended for use in electric pressure multi-cookers at this time.

This does not include the Ball® freshTECH Automatic Home Canning System. This particular appliance has been tested by the manufacturer for acid foods (fruits, pickles) and boiling water canning, not pressure canning. It should be used following the instructions that come with it.

Food Preservation Tips

Clean Out Your Freezer

Now is a great time to clean out your freezer to make room for fresh produce. You can take all those frozen berries and make jam and pie filling. OSU Extension Service in Linn County sells Clear Jel for making pie filling. One-pound bags are \$5 each. Instructions for making pie filling can be found here: <https://extension.oregonstate.edu/sites/default/files/documents/8836/sp50616fruitpiefillings.pdf>

Food Preservation Resources

We have two outstanding books for sale on food preservation. The USDA *Complete Guide to Home Canning* AIB 539, and University of Georgia Cooperative Extension's *So Easy to Preserve* Bulletin 989, Sixth Edition. Both books sell for \$15 each, and

are a wonderful resource for safe home food preservation.

Canning Timer and Checklist App PNW 689. This app provides abbreviated checklists and a timer to guide users in canning vegetables, fruits, meats and fish. Intended for people with previous canning experience, the app provides reminders of essential steps in the canning process. Get the app at <https://catalog.extension.oregonstate.edu/pnw689>.

Master Food Preserver hotline

The OSU Extension Service Food Safety and Preservation Hotline is open Monday-Friday from 9 a.m.-4 p.m., starting July 16 and ending on October 12, 2018. Talk to our Master Food Preserver volunteers about your food safety and preservation questions and concerns. Call 1-800-354-7319 (toll-free)

Get Your Canner Gauge Checked

The OSU Extension Linn and Benton County office will test your pressure canner gauge for free. Just bring in the gauge (on or off the lid is fine) and we will test it while you wait. It is recommended that you have your pressure canner gauge tested yearly.

Jar and Canning Equipment Donations Accepted

OSU Extension Service will accept canning jars and other food preservation equipment that you may be cleaning out of your basement or barn. We will make sure that it gets back into use by local community members, including gleaner groups. You can drop items by the Benton or Linn County Extension offices, or we can send a volunteer to pick them up.



Chrissy Lucas
541-766-3556
chrissy.lucas@oregonstate.edu

Groundwater Protection Education

Drinking Water, Nitrate, & Your Health

What is nitrate?

Nitrate is an inorganic compound that naturally occurs at low levels in soil, air, and water. Human activities can increase nitrate levels and cause contamination of water supplies. The most common sources of nitrate are fertilizers, animal manure, and septic systems.

What is the difference between nitrate & nitrite?

Nitrogen is present in many forms in our environment. It undergoes a variety of chemical reactions and changes that result in the production of nitrogenous compounds, two of which are nitrate and nitrite. Nitrate is the form that is most commonly found and measured in water. Nitrate and nitrite can be converted to carcinogenic nitrosamines by bacteria in the body.

How much nitrate am I exposed to?

The amount of nitrate that enters the body depends on personal habits and environmental conditions. Nitrate can be acquired through ingestion of drinking water, food, or medication but not during bathing. Vegetables have been found to account for more than 70% of nitrate in the typical diet with the remaining 21% coming from drinking water and 6% from meat products. Root vegetables, celery, collard greens, lettuce, spinach, cauliflower, and broccoli have especially high nitrate content. Nitrite, such as sodium nitrate conversely are found in the highest concentrations in cured or smoked meats and are not typically found in water.

Why should I worry about nitrate?

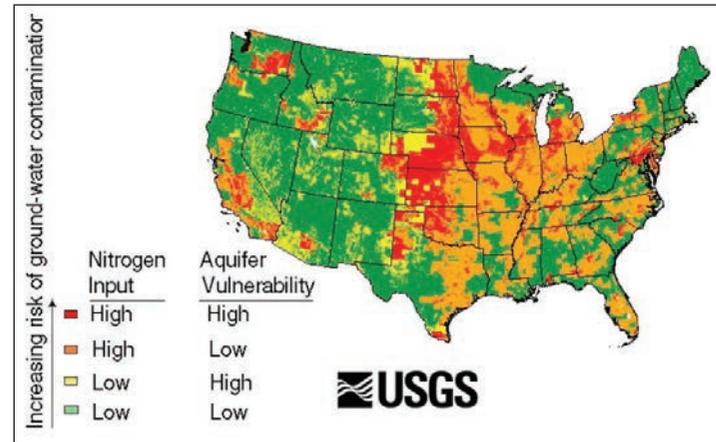
Groundwater that has become contaminated by nitrate may pose a threat to public health. Private wells are particularly at risk because they are not regulated by the government and do not have to follow water quality guidelines; monitoring is the responsibility of the owner. Shallow, private wells are more prone to contamination and tend to have higher nitrate levels than public water supplies. The US Environmental Protection Agency regulates public drinking water supplies to a health standard of 10 milligrams per liter. These standards have been adopted to protect the public and prevent water related illness.

Can nitrate cause health problems?

There is a potential health risk involved in drinking water that is high in nitrate. Scientific studies have found nitrates to be associated with methemoglobinemia (blue baby syndrome), diabetes, negative reproductive outcomes (miscarriage), and various forms of cancer. Research findings have been mixed though, and evidence is not conclusive. A limited number of studies have also found links to thyroid dysfunction, impaired immune response, decreased liver function, and respiratory infection; results have not been well confirmed.

What is methemoglobinemia?

Methemoglobinemia is the illness most commonly linked



to elevated nitrate levels and is the basis of the federal health standards. Also known as “blue-baby syndrome”, this is a blood disorder that primarily affects infants younger than 6 months. When nitrate is consumed it is converted by bacteria in the body to another chemical form, nitrite. Nitrite then interacts with the hemoglobin in red blood cells and reduces their ability to carry oxygen. If the blood cannot deliver enough oxygen to the body’s tissues, cells begin to die and the skin takes on a blue tinge. The majority of cases do not result in death and are completely resolved when the source of nitrate is removed.

Can high nitrate levels cause cancer?

The link between drinking water nitrates and cancer remains unclear though a number of systems have been proposed to be affected. Population based studies have found mixed results and because many of them fail to examine other cancer causing agents, the data is insufficient to draw conclusions. The bacteria responsible for nitrate conversion may also convert

nitrite to cancerous N-nitroso compounds, especially in the digestive system. This internal or endogenous formation of carcinogens has been shown to cause cancer in animal studies, but the human impact has yet to be thoroughly tested.

Does nitrate affect pregnancies?

Data is inadequate and the evidence is too limited to draw accurate conclusions. Some studies have found a relationship between nitrates and miscarriages, premature birth, and birth defects. The level of nitrate exposure is thought to be a factor in determining reproductive consequences; this is known as a dose-response relationship. Animal studies have supported this theory; the most severe cases appear to occur at extremely high nitrate doses.

What does this all really mean?

Based on the best available science, there is still no solid conclusion that can be drawn regarding the effects of nitrate on human health. Evidence has suggested a positive link with

Continued on Page 12

Free Private Well Testing Available

Are you part of the one in four Oregonians who get their drinking water from a domestic well? This summer, Benton County’s Domestic Well Safety Program is offering free testing for Benton County residents with private wells.

There are nearly 10,000 wells in Benton County, many of which have not been tested. Contaminants may be present in well water from both natural and man-made sources, and the best way to find out if your well water is safe for you and your family is by testing.

Program participants will receive:

- Free water testing for some of the most common well contaminants (nitrates, arsenic and bacteria);
- An inspection of the outside of the well and hazards around the well;
- A letter summarizing their test results and the possible health risks of drinking contaminated water; and,
- Recommendations to fix water contamination issues so their water is safe to drink.

County Environmental Health has been able to test nearly 150 wells in previous years, and this year they are testing 40 more. Benton County is accepting applications for the program now through August 17, 2018.

To apply, or to get more information about domestic well safety call 541-766-6841 or visit <https://www.co.benton.or.us/health/page/domestic-well-safety-program>.



Another Rough Year for Willamette Valley Trees

by Brad Withrow-
Robinson, Forestry
& Natural Resources
Extension agent for
Benton, Linn and Polk
Counties.

It is hard to miss all the dead and dying trees in the area. I have been getting dozens of calls about them. So what is going on, and what is to blame? It seems time to revisit this sylvan whodunit: What is killing all these Willamette Valley trees?

Who is involved?

Douglas-fir is by far the most frequent casualty, along with other conifers such as grand fir and some ponderosa pine. But trees of many sorts are being affected – hardwoods as well as conifers, both native and non-native. Many of the usual suspects – different beetles and fungi – can be found at the scene, too.

What is happening?

Symptoms often include dying branches and dead tops, low growth and vigor, sparse crowns, what we have called the “Willamette Valley crud.”. It often progresses to the death of the tree. This may be happening to individual trees or groups of trees. The younger trees are usually the first involved at a site, eventually joined by older trees.

Where is it happening?

This is certainly a Valley-wide phenomenon. But

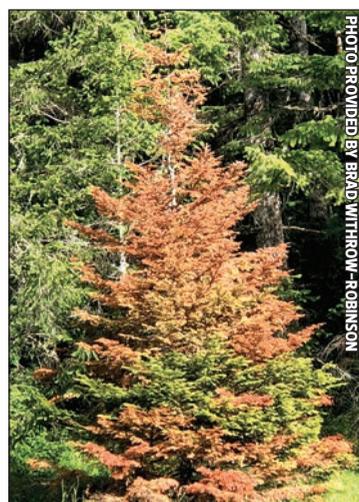


PHOTO PROVIDED BY BRAD WITHROW-ROBINSON

A grand fir tree recently killed by drought and engraver beetles. Note orderly galleries, bark flaked off by woodpeckers, small exit holes in remaining bark.



PHOTO PROVIDED BY BRAD WITHROW-ROBINSON

Flathead fir beetles make disorganized galleries just below the bark.



PHOTO PROVIDED BY BRAD WITHROW-ROBINSON

Drought-damaged trees have become a common site in the Willamette Valley.

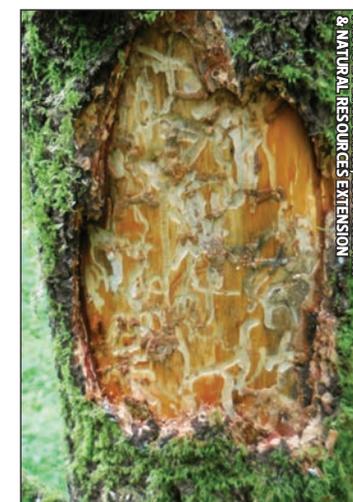


PHOTO BY DAVE SHAW, OSU FORESTRY & NATURAL RESOURCES EXTENSION

Drought symptoms may include dead branches, dead tops and low vigor – or all of the above.

within the Valley, we are seeing the most significant damage in certain situations more than others. Sites with seasonally wet, poorly drained soils, or sites with rocky or shallow soils, exposed south facing aspects tend to be most hard-hit. These are places that we think of as marginal sites for most conifer trees. Our conifers are well adapted to the area, but not every site.

When did this begin? This is an on-going event that began with a vengeance in the spring of 2013.

Why is it happening? Despite the many insect and disease suspects who can often be found at the scene, our investigation clearly indicates the real culprit is the weather. The first calls started in late summer

2012. It was a particularly warm summer with no rain until mid-October, which put trees, especially those on marginal sites, under stress. I think this was the triggering event, even though many symptoms were not evident until the following spring.

With that stress came the usual suspects – bark beetles, twig weevils, stem cankers – that caused many of the symptoms described above (dead side branches and tops). But the true culprit in this mystery drama is the string of unusually long and warm summers we have experienced many of the past five summers. The fungi and insects are coconspirators that are able to take advantage of the

situation. They may take the blame, but they generally are not the real cause of the problem.

Now What? We seem poised for another stressful summer. May 2018 has turned out to be one of the driest on record, and we are unlikely to catch up in June. Long term forecasts are for another warm, dry summer. We will just have to wait and see how it unfolds. But whatever happens this summer, I think we can expect to continue to see more sick, dying, and dead trees. There are several reasons for this.

First, many trees are already stressed or injured by the past hot drought events and are in a vulnerable condition. While not yet lost, this stress

makes them less resistant and more susceptible to the insects and diseases that are lurking about. A mild summer, or several mild summers would help. But even then, they will not recover immediately. Their earlier stress and injuries also hamper their ability to recover and rebuild their resistance, even under good conditions.

An analogy might be of me falling off a ladder. The injuries I suffered when I hit the ground continued to affect my health and recovery long after I stopped falling (it is harder to exercise with a broken leg). It will take a while to recover, even if I stay out of trouble. It will take longer (or could kill me) if I keep falling off the ladder. For the

trees, each of these summers is like another fall from the ladder.

Second, some trees are already lost. It may not be obvious, and they may still have needles, but they have been mortally wounded or have already been attacked by insects and will not recover, however our summer turns out. It is just a matter of time before those losses become apparent.

Looking ahead

In the long run, I anticipate that there will be a sorting out of trees by species and by site. Harsh, marginal sites will likely continue to lose Douglas-fir in this drought cycle, with the flat headed fir borer often involved. Grand fir will likewise have a hard time on marginal sites. Unfortunately, most of the low elevation Valley foothills now seems to be marginal for grand fir, which is being lost across our region to the fir engraver beetle, another coconspirator commonly associated with drought episodes. Woodpeckers often work on these trees, stripping the bark in their search for the beetle larvae.

So, we can probably expect to continue to lose some trees from some areas, but not all trees from all areas of the Valley. While this is an uncommon event, it is probably not unprecedented. Looking around, we see lots of old trees that show signs of past drought stress, like missing branches and flat tops. Lots of trees will survive, even in less than ideal sites. You may notice that Oregon white oak is often thriving in areas where conifers are struggling. It makes sense to maintain any drought adapted trees you have such as oak, madrone, ponderosa pine and incense-cedar.

What can be done? Many of the calls I get are not just asking what is wrong, but what can be done about it. People are interested in saving a sick tree, or concerned about some mysterious fungus or insect spreading to other trees.

Unfortunately, there is generally not much to do but

wait. This is a landscape-wide event driven by a multi-year weather pattern interacting with the local geology and ecology. Yes, a little grief counselling is sometimes involved in these calls. People get attached to their trees, and it is hard to hear that there are forces beyond our control that are causing them to die.

People often ask if they need to cut and harvest, or burn the infected trees to prevent whatever is killing their trees from spreading. Such sanitation actions can be helpful, but are often difficult to do effectively, especially in times of drought. If trees are downed in a major windstorm, we know when the trees fell, when they would be attacked and so, a date by which the sanitation activity must be completed to prevent another generation of beetles from emerging. But in a drought stress situation, there is a gradual wave of attacks. It is difficult to know when an individual tree was attacked and so, the time by which tree should be removed to effectively prevent beetle propagation. Once the tree is dead, the beetles have long since left, so it is too late to stop the beetles there. Sickly trees are vexing since symptoms may not show up until it is nearly too late for action, making sanitation difficult.

Sanitation may also not be as effective as one would hope for. The world is generally full of beetles lurking around. If a tree becomes so stressed to be vulnerable to beetles, they are there to find it. Leaving one more beetle-killed tree will not generally condemn its neighbors to an attack.

The Oregon Department of Forestry has an excellent series of fact sheets and videos on insects, disease, pheromone repellants, drought, and slash management. I'd encourage you to visit the site to investigate your situation more.

<https://www.oregon.gov/ODF/ForestBenefits/Pages/ForestHealth.aspx>

Volunteers Critical to Success of Linn, Benton Fairs

Continued from Page 1



Master Gardener volunteer Ranee Webb teaches a class about Mason Bees at the Linn County Master Gardener demonstration garden at the Linn County fairgrounds. Master Gardeners will be present at the coming Linn County Fair, so stop by the demo garden and say hello.

“It would be impossible for (OSU Extension) faculty or staff to handle all the questions that the volunteers field during the fairs,” Edmunds said. “They are bringing their expertise, interacting with the public, providing answers to questions on the spot and sharing their stories.

“Recently there is a focus on edible gardens, so they get a lot of questions about what fruits, vegetables and herbs grow well here,” Edmunds said. “Also, a lot of people are new to our area, and so the fair is a great time for them to talk to local gardeners and learn about local resources. That is something that we couldn’t do without that volunteer presence. We wouldn’t be able to reach near that many people.”

In addition to manning booths, Master Gardeners also maintain demonstration gardens at both the Linn and Benton county fairgrounds, which can be a significant commitment, Edmunds said.

“Things definitely slow down in dormancy, but the gardeners are at work on the demonstration gardens

from early spring through the fall each year,” Edmunds said.

While volunteering at the fairs can be a lot of work, according to sources, it is rewarding and enjoyable.

“It is so much fun just watching the kids develop their relationships in the barn and in the static area,” Leao said. “It is fun to watch them meet new people or people that they may have previously met but may not have known were in 4-H.

“The clubs camp together, cook together, and it kind of becomes a family out there,” she said.

“I enjoy working with kids,” Growcock said. “And it is kind of rewarding to see a pretty inexperienced 70-pound kid control a 1,300- or 1,400-pound steer. And I like helping the kids out.”

Now working with her fourth generation of 4-H participants, Growcock said she can’t see a time when she isn’t volunteering for 4-H.

“I like to keep busy and I enjoy it,” she said, “so I guess I’ll keep doing it.”

Commercial Agriculture Small Farms

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Growing Farms: Successful Whole Farm Management Course *Now Online!*

Turn your dream of owning and operating a sustainable farm or ranch into a reality with this course – now offered online anytime. Coming Winter of 2019 there will also be an online/on-site format available.

This course provides farmers with the tools and knowledge needed to develop and manage a successful farm business. This course is intended for people who are considering starting a farm business, those within their first five years of farming, and others who may be considering major changes to their farm business. Find out more and register here: <https://pace.oregonstate.edu/catalog/growing-farms-successful-whole-farm-management>

Drinking Water, Nitrate, & Your Health continued from Page 9

a number of diseases but due to conflicting results, we can only conclude that nitrate poses a potential health threat. As a general rule, if it looks like a substance could play a role in causing disease, consumption should be reduced whenever possible. In the end it is a personal decision, everyone must assess their risk and decide on an appropriate course of action.

How can I test my water for nitrate?

The OSU Extension Service offers free testing during Well Water Clinics and in many of the local offices including Polk, Benton, and Linn counties. The Oregon Department of Human Services maintains a list of approved labs that test public water supplies for a fee.

What should I do if my water has high nitrate levels?

It is important to keep in mind that drinking water contributes only a small portion of your total nitrate intake. If you are concerned about the safety of your drinking water and are interested in treatment options, contact several local treatment companies to discuss your options.

For more information contact:

Oregon State University Extension Service
Chrissy Lucas, Outreach Program Coordinator
chrissy.lucas@oregonstate.edu or 541-766-3556
<http://wellwater.oregonstate.edu>

*Reviewed 2018. Originally prepared By: Laura Moscovitz,
OSU Graduate student, 2006.*

OSU Extension Field Days

Field days are an opportunity to see the latest research in action, a time to network with other growers, and to offer Extension your feedback.

- **Caneberry Field Day - July 11, 1-5 p.m.**
- **Blueberry Field Day - July 18, 1-5:30 p.m.**

Oregon State University, North Willamette Research and Extension Center located at 15210 NE Miley Road, Aurora, will hold caneberry and blueberry field days. For more information contact 971-373-5912 or visit <http://oregonstate.edu/dept/NWREC/>

- **Dry Farming Field Day - July 30**

Come see corn, beans, winter squash, melon, zucchini, and tomatoes that were irrigated only once after planting in early May! Oregon State University Vegetable Crops Farm 34306 NE Electric Rd, Corvallis will host this day-long event. Learn about multiple research



PHOTO BY IRENE HARTLEY



PHOTO BY LYNN KETCHUM

projects working with the Dry Farming Collaborative to understand crop varietal and site selection, and assess efficacy of fungal inoculants

in enhancing drought tolerance. More details available soon! <http://smallfarms.oregonstate.edu/south-valley/events>

Small Farm School

Small Farm School will be held on Thursday, July 12, at Clackamas Community College in Oregon City. This is a full day event for beginning farmers, small acreage farmers, and



students. Twenty-eight classroom and workshop sessions are offered on a variety of topics relevant to small-scale farmers in the Willamette Valley. Presenters include farmers, OSU Extension faculty, and other agricultural professionals.

For more information and to register visit <http://smallfarms.oregonstate.edu/small-farm-school>

New Extension Agent Finds a Lot to Like in Oregon Ag

By Mitch Lies,
GROWING Editor

Oregon State University's College of Agricultural Sciences has named Will Jessie as new field crops Extension agent for Linn and Benton counties and southern Polk County.

Jessie, who holds a Ph.D. and a master's degree in entomology from Oklahoma State University, was introduced at OSU's annual Hyslop Farm Field Day on May 23.

Jessie is Extension's second new field crops hire in recent weeks. On April 18, Ryan Graebner was named new Extension cereals scientist. Graebner, who has statewide duties, holds a master's degree in crop science, specializing in barley breeding, and a Ph.D. with a specialty in potato breeding. He obtained both degrees from OSU. He is working out of the Columbia Basin Agricultural Research Center in Pendleton.

Jessie said he is excited to be working on the



New South Valley field crops Extension agent Will Jessie, at the OSU Hyslop Research Farm, comes to OSU from Oklahoma State University, where he obtained a Ph.D. in entomology.

wide variety of field crops produced in the Willamette Valley.

"I always wanted to come to the Pacific Northwest," Jessie said, "and then once I became interested in

agriculture, the Willamette Valley was a prime area to at least visit. So, having an opportunity to come out here and get to work in these (cropping) systems is pretty ideal for me.

"I am used to driving 100 miles and seeing wheat, canola and a little bit of ryegrass," he said. "Here you are going through orchards, vineyards, clover, meadowfoam and so much more. It is just incredible. And it is definitely a challenge having that diversity of production systems to work in, but that is one of the things that piques my interest – just how many different systems there are."

Jessie identified his first priorities as learning about the different cropping systems in the Willamette Valley and identifying knowledge gaps.

His future plans include conducting small-scale and farm-scale trials and developing better Extension information tools that growers can access to help in management decisions. "That is sort of a long-term goal," he said. "It is a daunting project to try and incorporate modern technology into some of the traditional Extension

education programs."

Jessie is the third field crops Extension agent to serve the south valley since Mark Mellbye retired in 2008. Paul Marquardt filled the position for less than a year, starting in March of 2012 and leaving in January 2013. Clare Sullivan filed the position from June of 2014 until January 2017, when she left to take a position as Small Farms and Community Food Systems Extension agent for three Central Oregon counties.

Jessie, 32, whose wife, Casi Jessie, is a post-doctoral student working in OSU Extension slug specialist's Rory McDonnell's lab, said he plans to stay in Oregon for a long time.

"I never thought we could come out and live and work in our fields in the Pacific Northwest," he said. "Finding two positions in the valley is just incredibly fortunate. We will definitely do our best to make sure that we stick around and make as much of a meaningful impact as we can."

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Caring for Young Hazelnut Trees

By Jeff Choate, Horticulture Extension Agent for Lane County

After months or even years of planning and preparation, it is a relief to get young hazelnut trees in the ground, but now the focus needs to shift to establishment. The first few years of a tree's life can set it up for long-term success...or failure! I like to think of the tasks associated with establishment as belonging to one of three categories:

- Provide for the basic needs of the trees.
- Anticipate and manage for likely problems, including biotic (living) and abiotic (nonliving) factors.
- Ensure pest management strategies don't become a stressor in and of themselves.

Water tops the list of basic needs. While established hazelnuts certainly can be grown in western Oregon without supplemental water, young hazelnut trees require irrigation to survive and thrive. How much water? Research to answer that question definitively is ongoing at OSU's North Willamette Research and Extension Center (NWREC) near Aurora, but in the mean-time here are some rules of thumb and a little context to explain them.

During the first growing season (first leaf), a good target is to provide water within an 18 inch radius around each tree. During the peak heat of summer,

average evapotranspiration (a combination of soil water loss via both evaporation and transpiration) in the southern Willamette Valley is approximately 1.5 inches per week. Applying water to a depth of 1.5 inches over a circle with a radius of 18 inches amounts to nearly 7 gallons of water, so the general recommendation is 6 to 7 gallons of water per tree per week. Of course, if the weather is cool, the trees can get by with less, and if we have a whole week of high temperatures in the upper 90s or above, the trees may need a little more, so 6-7 gallons per week is a general recommendation.

Some folks apply water to young trees from a tractor or ATV with a tank and wand, whereas others use drip irrigation or sprinklers. If individually watering each tree, calibrate by timing how long it takes to dispense 6-7 gallons so you know how long to water each tree. The duration of watering for drip or broadcast irrigation varies from one system to another, but the ultimate goal is the same: provide about 1.5 inches of water per week within the root zone.

As trees age, they don't necessarily need a greater depth of water, but as the canopy spreads above ground, so too do the roots spread below ground, so the 1.5 inches per week applies to the entire dripline of the tree.

Mulch aids both in water retention and discouraging weeds. Douglas-fir sawdust is the preferred material.



PHOTO BY BERTY HARTLEY, OSU

Young hazelnut trees with mulch to conserve water, and painted trunks to avoid sunburn.

I've seen people use a single heaping snow shovel full of sawdust per tree, whereas others use a full 5-gallon bucket per tree. The amount from those two methods is probably fairly similar, but the snow shovel looks to be the faster of the two.

The topic of mulch is a good lead-in to fertilizer. Generally, no fertilizer is needed in the first year or two (keep in mind that soil tests and pre-plant fertilizer applications already happened), but if we add

sawdust mulch, some slow release nitrogen is beneficial to offset soil nitrogen being tied up by microbes as they break down the carbon-rich sawdust. Nik Wiman's trials at NWREC have shown that 27-6-6 at a rate of 2 ounces per tree has been effective. There is nothing magical about that particular formulation, but it is slow-release, so any comparable amount of nitrogen in a slow-release form would be appropriate. Young hazelnut trees should have about 18 to

30 inches of new growth each year, so growth can provide an indication of the need to adjust fertilizer amounts.

When it comes to potential problems, it can be difficult to separate the biotic and abiotic. For example, sunburn generally won't kill a tree in and of itself, but sunburned bark is susceptible to Pacific flatheaded borers, and they can easily girdle and kill young trees. It is prudent to spray young tree trunks for borers, but using trunk guards or painting the trunks of young trees with a cheap exterior latex (water-based) white paint diluted 50/50 with water is an easy way to avoid sunburn and minimize borer damage (assuming the trees aren't stressed in some other way, such as from lack of water). Keep in mind that trunk guards may not be tall enough to protect all of the exposed trunks, so if there is a significant distance from the top of trunk guards to the first branches on the trees, it may be wise to paint the exposed trunks above the trunk guards.

Which is better: trunk guards or paint? There are pros and cons associated with each. A noteworthy advantage of trunk guards is that they protect the young, thin-barked trunks from herbicide injury. A disadvantage is that voles (field mice) can sometimes find protection underneath the guards while stripping away bark at the base of the trees. Additionally, suckers

Continued on Page 23

Alternative Animal Damage Control Program Takes Root

By Mitch Lies,
GROWING Editor

A Benton County pilot program to provide alternatives to lethal predator control has issued grant funding to eight applicants, marking the launch of a program several years in the making.

The awards of up to \$5,000 are being used to build predator deterrents, such as constructing protective housing and fencing and purchasing guard animals to protect sheep, goats, other livestock and crops.

Grant recipients range from commercial farmers to hobbyists, according to Randy Comeleo, chair of the Benton County Agriculture and Wildlife Protection Program Task Group, which is administering the program. The Oregon State University Extension Service, the Chintimini Wildlife Center of Corvallis and Benton County are partner organizations in the program.

Comeleo said he introduced the program to the county four years ago. “I had heard that we had a county trapper that was using lethal control methods exclusively and I had heard about another county that had a nonlethal program,



Use of guard dogs are one means of non-lethal animal damage control endorsed by a new Benton County Agriculture Wildlife Protection Program.

so I kind of pitched it to the budget committee and they seemed interested,” said Comeleo, an ecologist with master’s degrees in the natural resources and animal sciences.

Comeleo spent the next two years talking to scientists about nonlethal and lethal predator control, talking to farmers and conducting other research. What he found convinced him nonlethal predator and animal damage control not only helped preserve

wildlife, but also was more effective.

“It is really a win-win-win,” he said.

In March, Benton County held a workshop for local farmers on the topic, bringing in John Neumeister of Cattail Creek Lamb in Junction City, a forerunner in the use of nonlethal predator control, and representatives from Marin County, Calif., the only other county in the nation that Comeleo knows of to have a nonlethal predator

control grant program.

Comeleo formally proposed the program as a pilot project to the Benton County Budget Committee in 2017. The committee backed it with \$45,000.

Grant recipients are required to provide a 25-percent in-kind match in labor, use only nonlethal predator control for at least three years and submit a report on the efficacy of their program.

Comeleo said he believes that over time, the

recipients will find nonlethal control more effective than lethal control at minimizing depredation and crop losses from nonpredators such as beaver and deer.

“It works so much better in that it is a proactive method,” Comeleo said. “You are not getting the initial loss (of livestock), so the predators aren’t learning to kill unnatural prey. If you are committed to the process, in the long run, you will save a lot of money.”

Ranchers using nonlethal control also could be eligible for wildlife-friendly certification, Comeleo said, opening up sales opportunities to outlets such as Whole Foods.

Laurie Starha, director of Benton County Natural Areas and Parks, said the program is not intended to replace the county’s existing trapping program, a program jointly funded by the county, the state and the USDA.

“The concept is to have more tools in the tool box to give more options to farmers to manage predators,” Starha said. “Not all farmers approach things the same way. This is one way the county can help support the different programs and options that are out there.”

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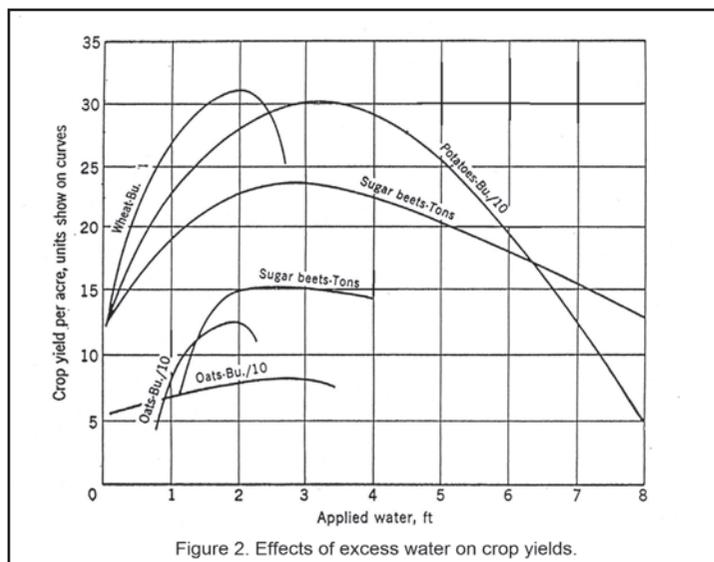
Commerical Agriculture Livestock and Forages

Linn County Livestock Association Accepting New Members

Linn County Livestock Association - LCLA has new officers and board members. I hope you had a chance to meet them at the annual meeting in March. Please contact Shelby.filley@oregonstate.edu or 541-236-3016 for a membership form.

Irrigation Notes: Pastures and Other Crops

Whether you are watering pasture or some other crop, we all know that irrigating affects plant growth. Did you know that over-watering as well as under-watering could inhibit crop yield? Both practices have economic ramifications, just look at the plant health and/or your electric bill for running your pump. Figure 2, Effects of excess water on crop yields, demonstrates this concept. Over-watering could also cause leaching of precious nutrients.



To know just how long to water, you need to gather information such as plant water requirement, water use and loss (evapotranspiration rate), soil type and depth, and water delivery rate.

Several publications available through OSU can help you with your quest to apply the optimum amount of water for your given situation. See <https://extension.oregonstate.edu/water>.

- EM 8716 Simple Irrigation Scheduling: Using the “look and feel” method.
- EM 8530 Oregon Crop Water Use and Irrigation Requirements
- PNW 288 Irrigation Scheduling
- EM 8862-E Irrigation System Maintenance, Groundwater Quality, and Improved Production

How Much Water Do Livestock Really Need?

By Shelby Filley,
Regional Livestock &
Forage Specialist

An animal’s need for water varies with type of animal and production level, as well as environmental conditions. Proper amounts of good, clean water are important for the health and productivity of the animal. This article addresses quantity and quality of water for livestock, and using water to control grazing.

Water Quantity Requirements

The quantity of water required varies with type of animal, including age and size, and production cycle. For example, lactating animals consume more water than non-lactating (dry cows). The environment also influences water intake. Hotter, summer temperatures increase water intake. Also, as the forage in the pasture dries out, the water intake will increase. This is because the animals are getting less water from fresh green grass that has higher water content than drier, more mature grass. Table 1 lists the average and range of water requirements that you



PHOTO PROVIDED

can use as guidelines. Check water frequently to ensure a good supply.

Water Quality Requirements

Water quality needs are more complex than quantity of water required. Water quality indicators include salinity (salts dissolved in water), hardness (calcium and magnesium levels), pH (acidity or alkalinity), individual minerals (sulfate, nitrate, etc.), and potentially toxic substances (arsenic, barium, and other metals). Health and performance of livestock is not harmed with water that is a lower

quality than is safe for human consumption, but there are limits. If you suspect problems, learn more about this subject and test your water. For publications on water quality and water testing laboratories, contact your local Extension Office.

Grazing Management

While water is a critical requirement of the animal, it is also an effective livestock management tool (Porath et al., 2004). Alternative water sources can be used to improve uneven pasture utilization occurring as a result of terrain and vegetation quantity and quality, and draw the animals away from a popular gathering area, such as a road, stream, or other commonly used area. Livestock often prefer off-stream water sources. It usually takes them less energy to get to and may be of higher quality than in-stream water. This may also help maintain healthy stream bank conditions.

Table 1. Water Requirements of different classes of livestock

Animal	Water requirement (gallons/day)	Range of consumption (gallons/day)
Dairy cow	20	15 - 25
Beef cow (pair)	15	12 - 20
Yearling cattle	10	6 - 14
Horse	10	8 - 14
Sheep	2	2 - 3

Source: *Watering Systems for Grazing Livestock*, Great Lakes Grazing Network and Michigan State University

Stink Bug Raising Alarms in South Valley Ag

By Mitch Lies,
GROWING Editor

To date, crop damage inflicted by the brown marmorated stink bug in the Willamette Valley has been concentrated in the north valley.

That could change this year.

According to Oregon State University Extension Orchard Specialist Nik Wiman, the stink bug could be a bigger problem this year for mid-valley and south-valley commercial orchardists.

The valley's relatively mild winter has contributed to high early-season trap counts, Wiman said, and if past trends hold true, 2018 could be the year its numbers explode in Linn and Benton counties.

"The way it goes is it hits the urban areas first and then tends to spread out and have an agricultural impact after that," Wiman said.

Native to Asia, the brown marmorated stink bug has been moving down the valley since it was first identified in the Portland area in 2004. In recent years, Wiman has fielded an increasing number of reports of the bug in the south valley.

"We have been getting a lot of complaints from homeowners in Eugene, and most recently from Lebanon and the Corvallis area," he said. "The reports run the gamut from, 'I saw one in my house' to 'I've got thousands of them in my unfinished attic.'

"Now there are sites in the mid and south valley that are every bit as bad as sites in the north valley," he said.



Agricultural interests are hoping the Samurai wasp, a parasitic wasp pictured on the right, can minimize crop losses from the brown marmorated stink bug, pictured on blackberries. Researchers began finding the wasp in the Portland area in 2015 and have since initiated a campaign to help it spread to other regions of Oregon.

Crops most at risk to the pest include peaches, cherries, pears, apples and hazelnuts, a crop that growers have planted heavily in the south valley in recent years.

In the short term, growers have few recourses to minimize damage from the pest, other than to spray harsh insecticides that can disrupt integrated pest management programs and cause secondary pest flareups, Wiman said.

"They are the type of products that you want to reserve for the worst-case scenarios," he said. "But there have been some people spraying for it, and this year, I think there are going to be a lot of people spraying for it. A lot of people are pretty worried by what they are seeing in their orchards."

In the long term, the industry is pinning its hopes on a parasitic wasp that attacks the bug's eggs. Researchers began finding the wasp, called the Samurai wasp, in the Portland area in 2015 and have since initiated a campaign to help it spread to other regions of Oregon.

"We knew it was going to spread anyway, and we thought we could spare a lot

of economic damage from the pest if we could help the parasitoid get ahead of it," Wiman said.

As for homeowners, there appears little recourse for removing the bugs once they infiltrate a site, other than to vacuum them.

"People have dedicated vacuum cleaners that they use for that purpose," Wiman said, "because once you start vacuuming them up, they will ruin your vacuum cleaner with their defensive compound odor."

The best method for homeowners to avoid issues with the bug is simply to keep them out of structures, Wiman said. Stink bugs infiltrate structures through crevices in fall and winter months as they look for warm sites for overwintering. The bug exits structures in the spring to begin feeding in forested areas and on commercial crops.

Wiman asks that homeowners and growers report when seeing the bug or the wasp at blogs.oregonstate.edu/wimanlab/. He added that Extension has resources online to help identify the wasp and egg masses that have been attacked by it.

Hyslop Field Day Updates Growers on OSU, ARS Research

By Mitch Lies, GROWING editor

About 150 participants gathered at the annual Hyslop Farm Field Day, May 23 in Corvallis, to get a glimpse into field crop research being conducted by OSU and USDA Agricultural Research Service scientists.

The field day included a soil health demonstration and advice on preserving it: (Till as little as possible, said OSU Central Analytical Laboratory Manager Shannon Andrews, keep roots in as long as possible, increase crop diversity and keep the soil covered).

There was a report on research into the use of plant growth regulators in orchardgrass. (They are showing tremendous yield-increase potential, said OSU Extension field crops agent Nicole Anderson).

There was a report on a trial looking at perennial ryegrass seed shattering, led by OSU's Department of Crop and Soil Science's seed physiologist Tom Chastain, and the use of remote sensing technology to assess losses.

And there was a report from the USDA's Forage Seed and Cereal Research Leader Ryan Hayes on stem rust resistance in perennial ryegrass genotypes and how that could eventually help growers increase yields and reduce treatment costs by utilizing germ plasm from the more resistant varieties for breeding purposes.

Participants heard about herbicides coming down the pike for controlling problematic grass weeds in grass seed crops. "There are three different compounds we think have some real promise," said OSU Extension Weed Management Specialist Andy Hulting in a presentation delivered in front of a carbon-seeded perennial ryegrass trial that showed some stark advantages when using the new compounds over the untreated control check.

While standing in wheat up to his thighs, OSU wheat breeder Bob Zemetra broke down some of the properties breeders analyze when developing new varieties. Among other traits, breeders analyze flowering timing, varietal height and heading date in soft white, hard white, hard red and club wheats so growers can select varieties that match the different environments of Oregon.

Zemetra introduced new OSU Extension Cereals Scientist Ryan Graebner, who talked about how stripe rust susceptibility appears to have caught up with the variety LCS Art Deco, but that LCS Shark, a new Limagrain variety, is looking promising at taking up that slack. "This is one that you are going to want to take a look at," Graebner said.

Casi Jessie, a post-doctoral scientist in OSU Extension slug specialist Rory McDonnell's lab, talked about how the lab is looking at whether beetles are helping control slugs in Willamette Valley field crops by feeding on the ubiquitous pest. Researchers are analyzing if beetles are eating enough slugs to reduce slug populations and, if so, which beetle species are doing so.

"Biological control has a huge potential in controlling slugs," Jessie said.

OSU plant pathologist Chris Mundt talked about how the wheat disease Septoria was coming on strong in Willamette Valley wheat this spring until the rains suddenly stopped in May. "I'd like to say that is a good thing, but it is getting to the point where we could use some rain to finish off the crop," he said.

In all, researchers left participants plenty of information to take home, with the promise of more findings to come at next year's event.

Linn County 4-H Youth Development

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Linn County 4-H/FFA Daily Schedule

While the Linn County Fair doesn't officially start until Wednesday, July 18, the 4-H/FFA portion of the fair begins on Tuesday. Come on out and watch some of the classes these kids have worked hard to prepare for all year.

Tuesday, July 17

- 9 a.m. Poultry; Market, Showmanship, Breeds (Santiam Bldg)
- 2 p.m. Meat Goat; Market, Breeds (Sheep/Goat Ring)
- 5 p.m. Swine; Breeds (Swine Ring)
- 5 p.m. Beef; Market (Beef Ring)

Wednesday, July 18

- 9 a.m. Sheep; Market (Sheep/Goat Ring)
- 9 a.m. Rabbit/Cavy; Market, Showmanship, Breeds (Santiam Bldg)
- noon Swine; Market (Swine Ring)
- 1 p.m. Meat Goat; Showmanship (Beef Ring)
- 4 p.m. Beef; Showmanship (Beef Ring)

Thursday, July 19

- 9 a.m. Swine; Showmanship (Swine Ring)
- 9 a.m. Dairy Goat/Pygmy; Showmanship, Breeds (Sheep/Goat Ring)
- 9 a.m. Honey Bunny Quiz (Santiam Bldg)
- 10 a.m. Poultry Testing (Santiam Bldg)
- 1 p.m. Rabbit Agility (Santiam Bldg)
- 2 p.m. Sheep; Showmanship, Breeds (Sheep/Goat Ring)
- 3 p.m. Chug-A-Lug Contest (Swine Ring)
- 4 p.m. Dairy Cattle; Showmanship, Breeds (Swine Ring)
- 3 p.m. Small Animal Costume Contest (Santiam Bldg)
- 4 p.m. Beef; Breeds (Beef Ring)
- 5 p.m. Cloverbud Show and Tell (Santiam Bldg)
- 7 p.m. Static Awards Ceremony (Willamette Bldg)

Friday, July 20

- 9 a.m. Open Class Beef Show (Beef Ring)
- 9 a.m. Open Class Sheep Show (Sheep/Goat Ring)
- 9 a.m. Livestock Judging (Swine Ring)
- 10 a.m. Small Animal Master Showmanship (Santiam Bldg)
- 4 p.m. FFA Large Animal Master Showmanship (Swine Ring)
- 5 p.m. 4-H Large Animal Master Showmanship (Beef & Sheep/Goat Rings)
- 6:30 p.m. FFA Awards Ceremony (Ring 1)

Saturday, July 21

- 8 a.m. Open Class Rabbit (Calapooia Ramp)
- 10:30 a.m. 4-H Award Ceremony (Ring 1)
- 1 p.m. Market Livestock Auction (Ring 1)

OSU 4-H CYFAR Grant wraps up a successful year

The OSU 4-H CYFAR Grant in Linn and Benton counties took place in collaboration with local middle schools in each county beginning in January. Linus Pauling Middle School in Corvallis and Calapooia Middle School in Albany graciously allowed our programming to integrate into their daily schedule, or to stand alone as an afterschool program. Throughout the duration of the term (January-June), each youth was given a journal to document their attitudes and thoughts about their own physical activity and/or nutrition.

The Linus Pauling Middle School site had approximately 120 participants, including three physical education (PE) classes and one afterschool club. The PE classes focused on 45-minute experiential learning lessons on physical activity, specifically kinesiology and cardiovascular topics, with an accompanying fun activity.

The Calapooia Middle School site had about 40 participants, including two Foods classes. This in-school program utilized the school's cooking facilities for a 15-week series. The focus was also on experiential learning lessons in nutrition and cooking.

At the conclusion of the 15-week afterschool 4-H Food + Fun Club at Linus



Some of the CYFAR youth enjoying the field trip to Olson's farms to pick strawberries.

Pauling Middle School, students capped off the school year with a field trip. Since the CYFAR Grant programming focuses on nutrition and physical activity, the youth helped plan our field trip to Olson's farms, as well as Get Air Trampoline Park in Salem.

Olson's farm staff warmly greeted us as we unloaded our group of 20 enthusiastic passengers from the 12-passenger vans. We were fortunate to run into Mr. Olson himself and ask him a few questions before walking to the acres of strawberry fields. Fresas (strawberries) are the first fruit to ripen in the summer, and we wanted the opportunity to see where our food comes from as well as harvest it. We learned the importance of consuming fresh fruits (which they happily practiced!) as well as

seeking out fresh food that is 'inseason.'

The Linus Pauling Middle School 4-H Food + Fun Club is all about linking nutrition education to applicable life lessons – such as cooking with engaging activities and social interaction. This field trip was no exception; the youth had a great time bonding with their friends outside of the classroom, as well as making positive memories picking delicious fruit.

For more information about the 4-H Food + Fun club funded by a CYFAR Grant, please contact Lindsay Walker, 4-H Latino Outreach Coordinator at 541-730-3539 or lindsay.walker@oregonstate.edu, for inquiries about this program and proposals to make it sustainable.

Fashion Revue Results Are In!

On June 9, Linn County held their Annual 4-H Fashion Revue at West Albany High School. This year's delegation representing the Family and Consumer Science project area was smaller than in the past, but what they lacked in size was more than made up for by the very high quality of participants presentations.

Many of the participants modeled clothing items that they had constructed themselves. Other people participated in the Consumerism portion of the contest where they go out and purchase an outfit for under \$25. New this year is the Challenge Contest. In this contest, members were challenged to create a new clothing item out of something old. We had one member take the challenge and make a jean corset belt out of an old pair of jeans.



Everyone did a great job and we have two members, Kelly Lejeune and Marie Guthrie, that have qualified to represent Linn County at the Oregon State Fair in August.

Volunteering Isn't Just for Adults

The 4-H program thrives because of all the great adult volunteers that support the clubs and members, however, adults aren't the only ones that volunteer. We have lots of junior leaders and teen leaders that help younger members as well as the adults throughout the 4-H year. These older teens take on leadership roles in preparing and helping with large events and educating the younger members.

Linn County had two Leadership members that participated in the Ag in the Classroom Literacy Program this spring. Taylor Harrington and Maddie Neuschwander presented Apples to Oregon to students in grades 1-3 at Mary Eyre School in Salem and Lafayette Elementary in



Kelly Lejeune and Marie Guthrie are volunteers at fashion revue.



Maddie Neuschwander and Taylor Harrington presenting Ag in the Classroom at Mary Eyre School.

Albany. Youth in the classes had the opportunity to learn about what the six "F's" in agriculture are: farming, fishing, fiber, flowers, forestry, and food. The students also learned that it isn't so easy to be a farmer while playing an apple farmer game.

During big events like Fashion Revue and fairs, youth volunteers take on important roles. For fashion revue a junior leader took on the role of coordinating the schedule and reading all of the commentaries. During fair, the junior leaders and teen leaders help with running shows, helping the younger and new members, and they assist with the awards ceremonies. These older members are the true role models of the program.



Plan ahead for State Fair fun!

How to get advance, discount State Fair admission tickets and carnival ride wristbands.

Oregon 4-H is partnering with the 2018 Oregon State Fair to extend an awesome deal. You can purchase advance admission tickets—and carnival ride wristbands—for nifty discounts.

Normally \$8.00 during the Fair, adult admission tickets are just \$5.00 (for those 12 and older.) Likewise, carnival ride wristbands cost \$50 at Fair time, but are just \$37.50 through this special offer. Plus, Oregon 4-H will earn \$1 for each admission ticket sold, and \$2 for each carnival ride wristband sold. So when you opt for summer fun at the Fair, you're also helping 4-H meet its mission. How fun is that?!

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Benton County 4-H Youth Development

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PHOTO BY JODI WENNERSON

Ron Leonard explains the difference between a stonefly and mayfly to middle school students at Hesthaven Nature Center.

Volunteer Spotlight: Ron Leonard

Ron Leonard loves sharing his knowledge and fascination of aquatic insects with students. He is a retired 6th grade teacher who continues to engage students in outdoor studies, especially those around macroinvertebrates. Ron has been helping the 4-H Natural Science programs at Science Nights, the 4-H Wildlife Stewards Summit, and for every one of the five sessions of FOCUS (Forests Organisms Creeks U Study) held this spring at Bezell Memorial Forest in Kings Valley. His passion for teaching young people is evident in his enthusiastic delivery, and he is not shy about getting his boots wet locating macros for the days field study.

Thank you to Ron and all the amazing natural science volunteers that have made 4-H programs available to more than 800 students this spring. We could not have done it without you.

Volunteers Needed at Fair in the 4-H Exhibit Building

Want to earn a one-day admission pass to the Benton County Fair? Just volunteer 2 hours of your time during August 1-August 4, in the 4-H Exhibit building, helping to monitor the 4-H Family and Consumer Sciences, Arts and Sciences Exhibits, and answer questions from the public. We are looking for 2-3 people per shift. Please call the Extension office at 541-766-6750 to volunteer.

2018 Benton County Fair & Rodeo - "Make a Splash"

Wednesday, August 1 - Saturday, August 4

Benton County Fair Hours:

- Wednesday & Thursday - 11am - 11pm
- Friday & Saturday - 11am - midnight

Gate Admission:

- Adults (17-59) \$10 per day or \$20 Season Pass
- Seniors (60+) \$5 per day or \$12 Senior Season Pass
- Youth (6-16) \$5 per day or \$12 Youth Season Pass
- Kids 5 and under FREE all day, every day
- Parking: \$5 at the gate
- Carnival All Day Wristbands: \$30 at the Fair Carnival Ticket Booths (\$25 Advance)

Discount Days and Special Events:

- Wednesday - Family Fun Day, Kids 6-16 get in Free All Day/Night
- Thursday - Senior Day - 60 years old and better get in Free All Day/Night
- Friday - American Heroes Day - Active and retired



military, police, fire, and emergency responders get in Free All Day/Night

Entertainment:

- Briana Renea - Wednesday, August 1, 7 p.m.
- Love and Theft - Wednesday, August 1, 8:30 p.m.
- Dreams - Fleetwood Mac Tribute - Thursday, August 2, 7 p.m.
- Rob Garrett - Neil Diamond Tribute - Thursday, August 2, 8:30 p.m.
- Fate 55 - Friday, August

- 3, 7 p.m.
- Micky Dolenz - Friday, August 3, 8:30 p.m.
- Trevor Tagle - Saturday, August 4, 7 p.m.
- Uncle Kracker - Saturday, August 4, 8:30 p.m.
- Willamette Valley Fiddle Contest - Friday, August 3 - come see Local, State and National fiddlers compete for more than \$2,200 in prize money on the Oak Grove Stage.

Information about the 2018 Benton County Fair can be found at: <http://www.bentoncountyfair.net/>

Congratulations!

4-H member Travis Hinz received a \$500 Benton County 4-H Bateman Scholarship sponsored by the Bateman family!

Upcoming Events

Mid-Valley Natural Resource Educators Working Group Meeting –

- When: Wednesday, July 11, 11:30 a.m.-1 p.m.
- Location: OSU Extension Service Benton County conference room at 4077 SW Research Way in Corvallis in the Benton County Sunset Building.
- Who should attend: Anyone who is interested in connecting with other local agencies and organizations who serve youth with natural resource/environmental education in the mid-Valley.

Two opportunities for Outdoor School Teachers and Educators:

Flying Wild for Outdoor School

- Date: Tuesday, July 31, 9 a.m. to 4 p.m.

- Location: Tualatin River National Wildlife Refuge, Sherwood, Oregon
- Audience: 5th & 6th grade educators and non-formal outdoor school educators

Curriculum and Resources:

- Guides:
- Project Learning Tree
- Flying WILD
- Resources:
- Oregon Forest Literacy Plan
- Oregon Environmental Literacy Plan
- OELP Integration Document
- Forest Connections
- And so much more

Lunch not included.

Flying Wild for Outdoor School

- Date: Monday, August 13, 9 a.m.-4 p.m.
- Location: Oregon Garden, Silverton, Oregon

- Audience: 5th & 6th grade educators and non-formal outdoor school educators

Both workshops will provide methods and strategies to increase formal and non-formal teachers' ability to enhance and extend their students' outdoor school experience. Participants will come away with the content knowledge, skills and materials to develop and use natural resources-based lessons aligned with outdoor school curricula, state standards, and statewide environmental literacy programs in the field or the classroom before or after their students attend outdoor school.

Lunch provided.

Registration: <http://onrep.forestry.oregonstate.edu/workshops>

Benton County and Linn County Extension programs may offer opportunities that are only open to the residents of their respective counties. Please check with your county Extension Office if you have any questions about participation eligibility for specific programs.

2018 Benton County 4-H Horse Fair!

Come watch our Benton County 4-H horse members compete at fair. It runs July 12-15 (Thursday through Sunday), at the Benton County Fairgrounds beginning at 8:30 a.m. daily.

This is a great place to see 4-H members participate in cow roping, trail, Western and English equitation, dressage, horse psychology, gymkhana, marketing, and other classes. There will also be an Equine Art exhibit, where you can see photography, art, poetry, and educational posters created by the 4-H members.

There is no admission charge for this event. These members have worked hard all year and love to have spectators attend!



PHOTO PROVIDED BY BENTON COUNTY 4-H

4-H Member maneuvering through Trail course obstacles.

Summer Safety

This is the time of year that farmers are out in fields – and alongside them is the next generation learning the trade. This summer OSU Extension Service, 4-H and Linn County Sheriff's office has provided two different classes supporting the training of youth to operate ATVs and other farm equipment. ATV youth safety was offered at Cheadle Lake Park in early June. Plans are being made to hold more ATV classes throughout the summer.

Doerfler Farms has graciously hosted a tractor safety course for the last



Youth give a thumbs up after their ATV training in Lebanon in June.

three years on their farm. This hands-on class is a great experience for the students to see what it is like to be on a true working farm. Students complete 24 hours of tractor safety class



Tom with Doerfler Farms showing students how to do a pre-start equipment check at the tractor safety class.

and tests to receive their tractor certification. Both programs are required by law for youth wanting to operate either ATVs or farm equipment.

First Year of Oregon Outdoor School is a Success!

Year one: Oregon Outdoor School by the numbers

Estimated participation and funding level based on 2017/2018 applications

- \$8.8 million in approved funding
- 121 school districts funded
- Number of students who will attend: 36,404. That's 75 percent of eligible students.
- Total number of days students will get outside: 136,465
- Funding awarded to districts in all 36 counties
- 82 new schools attending Outdoor School for the first time. That's 7,137 new students.



Composting for Profit

By Kevin Seifert,
Linn SWCD

If you've been stockpiling your manure in a single pile for as long as you can remember, you may have found that if you dig into the middle of the pile, you'll find something that resembles dirt more than it does manure. If this is the case, at least some of your manure has already gone through the decomposition, or composting, process. Manure that has been left uncovered in large, spread out piles will eventually compost. However, this version of composting often creates unpleasant odors because there is not enough air reaching the inside of the pile. These piles also rarely reach high enough temperatures to kill parasites, fly larvae, weed seeds, and pathogens.

The following information on composting will help you learn how to compost all of your manure, instead of what's just in the middle, speed up the process dramatically, and help heat manure up to temperatures that will kill parasites, fly larvae, weed seeds, and pathogens

What does compost do? It can improve aeration and water retention. Adding compost to soil builds good soil structure and texture, increasing the amount of air that can infiltrate and the amount of water it can hold. Adding compost to heavy clay soil loosens the



Composting pile in a District funded composting facility.

packed soil by opening up pore spaces that, like little tunnels, carry air and water down into the soil. Sandy soils, which tend to let water drain away too rapidly, are also improved with the addition of compost. The fine particles are united into larger ones that can hold a greater amount of water-100 pounds of compost can hold about 195 pounds of water! By increasing the soil's moisture-holding capacity, compost also helps control erosion that would otherwise wash topsoil away.

Compost can also supply nutrients. When fresh manure is spread on a field, about 50 percent of the nitrogen is in a highly soluble form and will be washed out by rain when it is spread on a pasture. In compost, however, 95 to 97 percent of nitrogen has been converted to a much

more stable form and will be slowly released, allowing plants to use it over a longer period of time.

Compost does out nutrients slowly when plants are small and at greater rates as soil temperatures warm up and the major growth period begins. (Soil microorganisms that release the nutrients from compost work harder as temperatures increase.) The benefits of adding compost will also last for more than one season. Composted manure releases about 50 percent of its nutrients in the first season and a decreasing percentage in the following years. This means that with constant additions of compost, the reserves of plant nutrients in the soil are being built up to the point where, for several seasons, little fertilizer of any kind may be needed.

How do I properly maintain my Manure pile?

Maintenance of the compost pile involves turning the pile and adding water to maintain conditions conducive to the composting process. If the pile is not turned, decomposition will occur, but at a slower rate. The following maintenance procedure will yield compost in the shortest time.

Turning a compost pile weekly can yield compost in one to two months with the right combination of materials and moisture content. Without turning, decomposition takes six months to two years. Excellent quality compost can be made either way. When selecting a composting method, consider economy, neatness, permanence, need for finished compost, and time available for maintenance.

In a pile constructed according to the method

described here, the pile temperature will increase rapidly and soon reach about 110 degrees F. After about a week, the pile should be opened to the air and any compacted material should be loosened. Then the pile should be reconstructed; material previously on the top and sides of the pile should be moved to the center.

At the second turning (after about another week), the material should be a uniform coffee-brown color and moist. The relatively undecomposed outer layer can be scraped off and turned back in to the center of the pile. The center material should be spread over the outer layer of the reconstructed pile. By the third turning, the original materials should not be recognizable. At each turning, the moisture content should be checked using the squeeze test. Squeezing a handful of compost you should be able to make some water droplets appear around the edges. If you can't squeeze some water out of the compost it is too dry. However, if more than four drops appear it is too wet. Water or moisture absorbing materials should be added, as indicated.

During the first few weeks of composting, the pile should reach a peak temperature of about 140 degrees F. If temperatures surpass 140 degrees F, the pile should be turned to

Continued on Page 23

Calendar of Events for Linn & Benton Counties

July 2018

<p>9 Growing coffee and tea, Lebanon Second Monday gardening talks, noon-1 p.m., The Lobby, Lebanon</p> <p>11 Mid-Valley Natural Resource Educators Work Group Meeting, 11:30 a.m. to 1 p.m., Benton County Extension office</p> <p>11 Caneberry field day, 1-5 p.m., North Willamette Research and Extension Center located at 15210 NE Miley Road, Aurora</p> <p>10 Preserving Fruits, Jams and Pie Fillings, 6-9 p.m., Linn County Extension office</p> <p>12-15 Benton County 4-H Horse Fair, 8:30 a.m. daily, Benton County Fairgrounds, Corvallis</p> <p>16 MFP hotline goes live. 1-800-354-7319</p> <p>17 Fall & Winter Gardening, 10-11 a.m., LBCC Veterans Garden, LBCC main campus, Albany</p> <p>17 Pressure Canning and Dehydrating Foods, 6-9 p.m., Linn County Extension office</p>	<p>18 Blueberry field day, 1-5:30 p.m., North Willamette Research and Extension Center located at 15210 NE Miley Road, Aurora</p> <p>18-21 Linn County Fair. Fair opens daily at 11 a.m. More information at linncountyfair.com</p> <p>24 Preserving Tomatoes & "The Laws of Salsa," 6-9 p.m., Linn County Extension office</p> <p>28 Canning fruits and pie fillings, dehydrating fruits, and fruit leathers, 9 a.m. to noon, Santiam Valley Grange, Lyons</p> <p>30 Dry Farming field day, OSU Vegetable Crops Farm, 34306 NE Electric Rd, Corvallis</p> <p>31 Pickling: Fermenting & Quick Pickles, 6-9 p.m., Linn County Extension office</p>	<p>daily at 11 a.m. More information on the Benton County 4-H page.</p> <p>1 Preserving Fruits, Jams and Pie Fillings, 6-9 p.m., Linn County Extension office</p> <p>8 Pressure Canning and Dehydrating Foods, 6-9 p.m., Linn County Extension office</p> <p>13 Garden Ergonomics, Lebanon Second Monday gardening talks, noon-1 p.m., The Lobby, Lebanon</p> <p>15 Preserving Tomatoes & "The Laws of Salsa," 6-9 p.m., Linn County Extension office</p> <p>16 Tomato variety show & tell (& tasting) & preserving the harvest, 10-11:30 a.m., Albany Senior Center</p> <p>18 Pressure Canning vegetables, meats and fish, 9 a.m. to noon, Santiam Valley Grange, Lyons.</p> <p>22 Pickling: Fermenting & Quick Pickles, 6-9 p.m., Linn County Extension office</p>
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August 2018

1-4 Benton County Fair and Rodeo. Fair opens

Composting for Profit continued from Page 22

cool it off. Extremely high temperatures can kill many beneficial organisms. If the pile does not reach at least 120 degrees F, more nitrogen or water may be needed. Cold weather can also prevent the pile from heating. Piles that give off strong ammonia smells contain too much nitrogen,

and may need more high-carbon ingredients. Simple carbohydrates and proteins provide most of the energy for the initial, rapid stages of decomposition. When the more resistant materials, such as woody fibers and cellulose, become the main food sources, the activity in the pile

will slow down. Less heat will be produced, and the temperature will begin to fall to about 100 degrees F. Even after the temperature falls, the compost will continue to stabilize slowly. The compost will be finished when the pile cools off and decreases to about 1/3 of its original volume

(depending on the original ingredients). It will be dark, crumbly, and have an earthy odor. The C:N ratio will be less than 15:1, approaching the value of humus in soil, and the temperature usually will be within 10 degrees F of ambient air temperature. Unfinished compost can be toxic to plants,

especially to seedlings and newly established plants. Therefore, compost must be allowed to decompose thoroughly before use. Those are some starters on why composting might be a good option for you and how to get started with your composting project.

Young Hazelnuts continued from Page 14

can grow underneath the guards and require manual removal later on. Note that paint does not provide any significant protection from herbicides, so that is a noteworthy disadvantage of paint. Both trunk guards and paint provide protection from sunburn, but, as mentioned previously, trunk guards may not be tall enough to protect all of the trunk.

After having gone to great lengths to select among the many eastern filbert blight (EFB)-resistant cultivars, it is easy to assume that fungicide treatments are not needed. However, even these new cultivars should be sprayed for at least the first spring after planting, and that is especially true when new orchards are planted near heavily infected orchards.

I still see the occasional orchard where new cultivars are planted among established trees, such as after removal of every other tree/row. OSU Extension strongly advises against this practice, because the new cultivars are resistant but not immune to EFB, and placing undue pressure on the young trees by surrounding them with inoculum may hasten

mutation of the EFB fungus in such a way as to overcome the resistance. In late August or early September young hazelnuts should receive a copper spray to protect them from bacterial blight. Weed and sucker control are important throughout the summer, and it is important to follow all label instructions on herbicides to avoid injury

to the trees. Remember that when products are tank-mixed, the most restrictive directions of all the labels applies. For example, if one label recommends an adjuvant (surfactant; spreader-sticker; etc.) but another label specifically prohibits the use of an adjuvant, then the prohibited adjuvant(s) cannot be used in the tank mixture.



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