By Mitch Lies, GROWING Editor

Having studied them in class, Stacey Zaback’s fourth and fifth grade students were aware of macroinvertebrates. Seeing them in nature, however, brought them to life.

The students’ experience was part of this year’s 4-H Wildlife Stewards Summit, one of several events Oregon State University Extension puts on each year that teaches youth about nature while encouraging them to get outdoors.

Held May 2 at Kings Valley Charter School in Philomath, the summit provided a learning experience that will stay with students for life, according to Barb Holt, head teacher at Muddy Creek Charter School, who attended the summit to support the students.

“The hands-on activities are huge,” Holt said. “This is how kids remember.”

Kings Valley and Muddy Creek charter schools are among eight Benton County schools and 25 classrooms that have participated in the summit over the years. In addition to exposing youth to nature, the program encourages youth to develop projects, such as creating a Monarch Butterfly Restoration Area, developing posters and sharing projects to a panel of judges.

High school students also participate. They provide instruction to the elementary students as part of the 4-H Teens as Teachers program, which helps the older students gain confidence and skills in working with younger students.

The younger students, meanwhile, dissect fish, conduct hay-bale races, plant starts to take home, stretch their arms wide to see how their span compares to the wing span of an owl and discover a world of macroinvertebrates living in creeks.

“We talk about macroinvertebrates in the classroom,” said Zaback, who teaches at Kings Valley Charter School, “but being able to go out and see them in the creek brings them to life.

“I really think their sense of wonder comes out,” Zaback said.

The 4-H Wildlife Stewards Summit is organized by OSU Extension Benton County 4-H with support from community partners, such as the Oregon Department of Fish and Wildlife, Benton Soil and Water Conservation District and Audubon. The program is just one part of an effort by Extension to connect youth to the outdoors.

“Today’s American kids are less connected to the outdoors than any previous generation,” said Maggie Livesay, 4-H Natural Resources faculty. In 2013, a needs-assessment was conducted by Benton County 4-H that showed youth in the county and in other areas of the mid-Willamette Valley had limited opportunities for outdoor education and recreation experiences. As a result of that assessment, many of the existing Benton County 4-H programs were developed, Livesay said.

Among its outdoor-oriented programs, OSU Extension Benton County annually hosts Forests, Organisms, Creeks YoU Study, or FOCUS, a five-hour, field-based 4-H natural science program for third and fourth grade students. The program exposes youth to local ecology while they hike in Beazell Memorial Forest, a managed conservation forest just west of Corvallis.

The program was created in partnership with Benton County Parks and Natural Areas to provide youth a safe environment for hands-on science learning and an outdoor experience. The park contains Douglas-fir, oak forest savanna, riparian ecosystems, an education center and hiking trails.

FOCUS served a total of 256 third and fourth grade students in 2019 from five Title 1 underserved schools, including Philomath, Blodgett, Lincoln, Corvallis and Helmcken.

The program is organized by OSU Extension Benton County and is supported by the Oregon Department of Fish and Wildlife, Benton Soil and Water Conservation District and Audubon.

Continued on Page 2
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 4607 SW Research Way in Corvallis. Office hours are 8 a.m. until 5 p.m. Monday through Friday. Telephone: 541-766-7570. 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. until 5 p.m. Monday through Friday. Telephone: 541-967-3871. http://extension.oregonstate.edu/linn.

Program Staff Phone Numbers

Linn County 4-H Youth Development Vacant 541-730-3534
Linn County 4-H Youth Development Andrea Leao 541-730-3534
Benton County 4-H Youth Development and Benton County Leader Carolyn Ashton 541-713-5000
Benton County 4-H Youth Development Ellli Korthus 541-713-5000
Benton County 4-H Natural Science Maggie Livesay 541-713-5000
Field Crops* Will Jessie 541-730-3537
Livestock & Forages* Shelby Filey 541-672-4467
Dairy* Jennifer Cruikshank 971-600-1222
Small Farms* Melissa Fery 541-730-3538
Small Farms* Amy Garrett 541-713-5000
Small Farms* Teagan Moran 541-713-5000
Small Farms & Groundwater Education* Chrisy Lucas 541-713-5009
Community Horticulture* Brooke Edmunds 541-730-3470
Community Horticulture* Elizabeth Records 541-730-3477
Forestry, Natural Resources* Brad Withrow-Robinson 541-967-3871
Forestry and 4-H Youth* Jody Emerson 541-713-5000
Family & Community Health (FCH)* Jeanne Brandt 541-730-3544
FCH & SNAP Ed* Tina Dodge Vera 541-730-3541
SNAP Ed* Brooke Jackson 541-713-5000
SNAP Ed* Paul Smith 541-967-3871
EFNEP* Vacant 541-730-3542

* Multi-county assignment

Administration and program support serving Linn County

Office specialist Laurie Gibson 541-248-1088
Office specialist Jolynn O’Hearn 541-967-3871
Office manager & Linn County Leader Michele Webster 541-248-1087
Seed certification Tom Manning 541-967-3870

Administration and program support serving Benton County

Office specialist Kelly Butler 541-713-5000
Office manager Liz McGovern 541-713-5000
Office specialist Andrea Watson 541-713-5000
Regional Director Richard Riggs 541-967-3871
GROWING editor Mitch Lies 541-967-3871

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Oregon State University Extension Service

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Extension ‘ Bringing Nature to Life’

Garfield and Mt. View Elementary. In a follow-up evaluation, teachers described it as “a great learning experience.”

On June 8, Extension and other partners hosted their seventh annual Get Outdoors Day at Peavy Arboretum, a research forest north of Corvallis operated by OSU. The event, part of national Get Outdoors Day, seeks to reconnect youth to the outdoors through nontraditional and traditional outdoor activities, including fishing and pitching a tent.

“The idea is to connect youth and first-time visitors to the great outdoors and support the ideals of sustainability, fitness and nutrition,” according to Livesay. It is designed to address the exercise and outdoor deficits prevalent in the local community, she said, and also expand and strengthen the connection between OSU and communities in the mid-Valley. “We want to encourage local residents who are not already deeply involved in outdoor recreation to get outdoors by introducing them to a popular recreational site and providing education to make it fun and safe,” Livesay said.

Get Outdoors Day engaged over 600 youth and families and 80 volunteers this year, Livesay said. According to evaluation results, 55 percent said they were first time visitors to the event; 83 percent reported that it helped their family gain confidence to participate in outdoor recreation.

The program also works to engage the local Latino and Arabic speaking communities and underserved audiences in Albany and Corvallis. Bilingual volunteers provide Spanish and Arabic interpretation for the event. In 2019, 35 percent of attendees self-reported that Spanish was their first language.

Nationally, Get Outdoors Day is held at approximately 140 sites each year. In Oregon, the OSU College of Forestry, OSU Extension Service Benton County and the Benton County Health Department host the event.

Extension’s efforts to get people outdoors doesn’t stop at youth. The OSU Extension Master Gardener program, which utilizes citizen volunteers to help educate the general public on gardening, is now in 30 of Oregon’s 36 counties, including all of western and central Oregon. The Oregon program, which has been in place since 1976, is one of the oldest in the nation, having started just three years after the nation’s first Master Gardener program was initiated in Seattle.

Then there is Oregon Season Tracker, a program for both local students and adults that encourages citizen scientists to track weather occurrences and plant phenology in their own backyards and post their observations on a national database used by, among other organizations, the National Weather Service. The five-year old program, which was launched in Benton County, has generated participation from more than 250 Oregon residents.

“Getting youth and adults outdoors is something we at Extension care deeply about,” Livesay said. “We believe it is an excellent way of improving the health and wellness of our citizens, as well as improving the stewardship of our natural resources.”

Students document plant varieties in preparation for taking starts home as part of the 4-H Wildlife Steward’s Summit at Kings Valley Charter School in Philomath.

Students participate in hay bale races as part of the 4-H Wildlife Steward’s Summit, held May 2 at Kings Valley Charter School in Philomath.

An older student shows younger students how to dissect a fish as part of the 4-H Wildlife Steward’s Summit at Kings Valley Charter School.
Come back!

Have you completed the Master Gardener Program in the past and want to get involved again?
Not sure what the requirements are or how to get back to volunteering?
Let’s talk! Give us a call or send an email and we can let you know how.
Elizabeth Records, Master Gardener Program Assistant, Elizabeth.records@oregonstate.edu, 541-730-3471.

Through the Garden Gate tour a big success

The OSU Extension Linn County Master Gardeners’ held their 20th Annual Garden Tour – Through the Garden Gate – on a beautiful Saturday in June. They had the biggest turn out to date and lots of positive reviews from folks who attended. Attendees had the opportunity to tour beautiful private gardens around Albany and Linn County and get inspiration to create their own garden oasis. The garden owner(s) and Master Gardeners were available at each garden to answer any questions.

All funds raised directly support gardening education for adults and youth in Linn County.

July-August Gardening Calendar for Western Oregon

The Oregon State University Extension Service encourages sustainable gardening practices.
Preventive pest management is emphasized over reactive pest control. 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.

**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.
- 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.

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The Benton County Master Gardener Association (BCMGA) and Linn County Master Gardener Association (LCMGA) honor outstanding Master Gardeners each year and nominate them for statewide recognition with the Oregon Master Gardener Association (OMGA).

2019 Benton County Master Gardener of the Year - Deb Kern

Deb has been an enthusiastic member of Benton County Master Gardeners since 2013. During Deb’s tenure she has continually stepped up to fill roles essential to support the Association. She is a regular, highly dependable volunteer at many BCMGA events. This year she has helped with Insights Into Gardening and the BCMGA Plant Sale, is a mentor of trainees and a dedicated volunteer at the Demo Garden. In addition Deb co-chaired the Benton Demonstration Garden and the Plant Problem Scenario Program subcommittee, and was Secretary of the Board of Directors for two years. She is everywhere you look if there is a BCMGA event.

2019 Benton County Master Gardener Behind the Scenes - Fred Prahl

Fred has been active in the Benton Demonstration Garden and Fairgrounds Entrance Beds. Fred is both a self-starter and a very willing participant when help is needed. Fred also participated in the Plant Scenario exercises, mentored trainees, and helped with the Plant Sale process from digging, dividing, caring for, setup and day of sale. He works on the Help Desk where he treats clients with respect, always keen to understand and answer their questions. He has a sense of humor that makes working with him fun and sets everyone at ease.

2019 Benton County Master Gardener Behind the Scenes - Nanako Smith

Nanako is a quiet, steady worker, always ready to volunteer. For the past several years she has been the friendly face behind the food table at the BCMGA Plant Sale and Plant Sale work parties feeding over 150 volunteers. Also for the Plant Sale, she sorts incoming plants according to their exposure needs and strategizes how to get the most plants in the smallest spaces. She moves heavy, wet plants across uneven terrain from potting to the storage areas. Nanako’s other key contribution is that she builds a positive community among us with her kind and gentle nature.

2019 Linn County Master Gardener of the Year - Larry Steele

Larry Steele shows his passion for gardening at the Linn Demo Garden. He put in most of the hardscapes for pathways, retaining walls and beds. Larry volunteers as needed – pruning, harvesting, fixing broken pipes, and more. He teaches classes on composting and worm bin composting. His themed PPP plot is a hit. Some PPP themes were: Peppers, Peppers, Peppers, a Plant Protein Plot, and a Purple Passion Plot (purple vegetables). Larry has worked many plant clinic tables, worked the Albany Garden Tour, helped with bee supply sales, and has been a LCMGA Board member. His long term participation is much appreciated!

2019 Linn County Master Gardener Behind the Scenes - Melinda Marian

In just 2 years Melinda Marian has quietly had a major impact. In an underdeveloped and neglected area of the Linn Demo Garden, Melinda added a shade loving groundcover area, a small-shrubs area and takes care of the berries and dahlias. She has produced a colorful Demo Garden map and donation brochure, worked on the main walkway for wheelchair accessibility, made the entrance more attractive and helped with shed organization. Melinda chaired the Pollinator Conference book sales and has helped with the fall mason bee cocoon harvesting classes. She will be an instructor for the class in the fall. Melinda Marian is amazing!
Master Gardener Curious?

Get The Valley Gardener free eNewsletter!

- Be the first to know when Master Gardener applications for 2020 open this fall!
- Find gardening resources
- Take FREE garden classes

https://tinyurl.com/y2z6xdke

Garden Calendar continued from Page 3

- 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**

- 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 fibertrees for fibbertwigs, 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.
- 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 (PDF).
- 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.
You Are What You Eat?

By Kaley Dick, OSU Extension Service Dietetic Intern

Everyone has heard the saying “You are what you eat.” But more precisely, you are what you feed the bacteria that live in your gut. The lining of your gut, also known as the microbiome, is filled with more than 500 different species of bacteria. Some may consider bacteria and other microorganisms as harmful; however, microorganisms are found within our bodies to help us stay healthy. While research continues in this area, some indicates that the microbiome can remain balanced by fueling it with prebiotics and probiotics.

What are prebiotics and probiotics?

Prebiotics are specialized plant fibers that are linked to promoting growth of helpful bacteria within the microbiome. Prebiotics contain fructooligosaccharides, inulin, and galactooligosaccharides. Now don’t let these long words scare you away, it really means that prebiotics are found naturally in fruits, vegetables, and whole grains.

Try consuming foods such as onions, bananas, leeks, soybeans, asparagus, and whole—wheat products to support prebiotic utilization.

Probiotics are live organisms or the “good” bacteria found in the gut. For instance, bacteria are normally within our intestines to help digest food, produce vitamins, and destroy disease-causing microorganisms. The most common probiotics found in food products include Lactobacillus and Bifidobacterium species. These can be found in fermented dairy foods, such as yogurt, kefir, and aged cheese. There are other non—dairy options including kimchi, miso, kombucha, tempeh, and sauerkraut.

What does the research say?

Research has proven that probiotics may help prevent diarrhea caused by antibiotics or infections. They have also been useful in managing the symptoms of irritable bowel syndrome, improving gastrointestinal health, and enhancing calcium absorption. The verdict is still out on whether probiotics and prebiotics are effective with aiding in weight loss, strengthening the immune system, preventing oral health problems, and diminishing the common cold.

The bottom line is prebiotics and probiotics go hand—in—hand. Prebiotics are “good” bacteria promoters and probiotics are the “good” bacteria that may help promote a healthy GI system. When looking to get the best out of both sources, try combining prebiotics and probiotics within a meal. For instance, have an apple with yogurt or a stir—fry asparagus with tempeh.

Citations
- Food and Agriculture Organization of the United Nations and World Health Organization. Health and nutritional properties of probiotics in food, including powder milk with live lactic acid bacteria.

The best plants in town!

We offer organic veggie starts, organic seeds, fruits and berries. Plant now for a bountiful harvest this season!

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http://extension.oregonstate.edu/benton
Food Sensitivities:
Allergies vs. Autoimmune

By Kaley Dick, OSU Extension Service Dietetic Intern

Autoimmune diseases and allergies are on the rise in a significant way. Currently, it is estimated that up to 700 million individuals are suffering from food allergies and autoimmune disorders. Although autoimmune diseases and allergies both occur when the immune system attacks the body, they do so in very different ways.

Food Allergies

The body triggers attack mode when a problem food is eaten, resulting in immediate symptoms such as itching, swelling and hives. For many individuals, more severe symptoms occur, such as trouble breathing and swallowing, a drop in blood pressure and loss of consciousness. While any food can cause a reaction, 90 percent of all reactions are from eight foods: milk, wheat, eggs, soy, fish, shellfish, nuts, and peanuts.

People with food allergies must avoid the food even in small amounts. A past exposure may have been mild but future contact with the allergen can result in a stronger and potentially life-threatening response.

Autoimmune Disease

Typically, the immune system will protect against disease and infection; however, with an autoimmune disease, the immune system attacks healthy cells within the body by mistake. For example, Celiac disease is an autoimmune disorder in which the body’s immune system causes an attack on the intestines when gluten is eaten. It is diagnosed through an IgE blood test, skin prick test, and/or small intestine biopsy. While the symptoms are not immediately life-threatening, they can be devastating. Continuous exposure to gluten can result in serious long-term health conditions, even for those who don’t experience outward symptoms.

If you have either an allergy or an autoimmune disease, it is recommended to stay away from the food product that causes such negative reactions. A few tips would be to meet with a nutrition professional, become comfortable with reading nutrition labels, and avoiding cross-contamination.

If you have been tested and have a confirmed allergy or autoimmune disease, here are a few websites that offer simple recipes:

- https://www.eatright.org/food/planning-and-prep/recipes
- https://foodhero.org/recipes/categories/36

Citations


- Food–allergies–and–intolerances

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 spring.
- Prune raspberries, boysenberries, and other caneberrries 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.

Continued on Page 8
Food Preservation Resources

Get your pressure canner gauges tested for free at the OSU Linn County Extension office! Bring in just the dial gauge or the gauge on the lid.

Make certain you have current instructions to follow before you start your preservation projects: http://extension.oregonstate.edu/fch/food-preservation

Download the canning app to remind you of all the steps involved in successful canning. https://catalog.extension.oregonstate.edu/pnw689

Also, check out our upcoming food preservation classes – details on this page.

Garden Calendar continued from Page 4

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 yellowjackets 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.
- Spray potatoes and tomatoes for early and late blight.

Food Preservation

2019 Hands-On Classes

- **July 9 or August 8**
  Fruits, jams, & pie fillings

- **July 16 or August 15**
  Canning & dehydrating vegetables and meats

- **July 23 or August 22**
  Preserving Tomatoes & "The Laws of Salsa"

- **July 30 or August 29**
  Pickling: Fermented and quick pickles

**Tuesdays in July**

OR

**Thursdays in August**

6-9PM

**Held at:**

Linn County Extension 33630 McFarland Road Tangent, OR 97389 541-967-3871

Cost is $18 per class or $60 for the series of 4 classes

**Pre-registration is required at https://beav.es/Z1L**

Safe Recipe Style Guide – a new tool for consumers

The Partnership for Food Safety Education has introduced a Safe Recipe Style Guide intended to dramatically improve consumers’ safe food handling behaviors at home. The Style Guide provides specific, concise recipe text to address cross contamination, and safe handling of fresh produce. The Style Guide can be found online at www.saferecipeguide.org.

**Source:** Extension Food Preservation & Food Safety Specialist Barbara Ingham, University of Wisconsin-Madison
Well Going Dry???

While changes in an aquifer can result in a well producing less water than in the past, many people overlook the possibility of a pump or well construction problem. This page will help you determine which of these may be the cause of your problem.

Water tables often fluctuate naturally from season to season. In general, the shallower the well, the greater the risk of water levels falling in response to dry conditions. This is because many shallow wells are drawing water from surface (water table) aquifers that are recharged primarily through precipitation. If you are unsure if you have a shallow well, check your well log or contact your watermaster for assistance.

Another potential change in the aquifer is if overpumping is occurring. The level of water in an aquifer can fall if water is being pumped at a rate that exceeds natural replenishment. Pumping creates a cone of depression in water table aquifers. This localized lowering of the water table can be significant when pumping is excessive. In addition, if the cones of depression for two or more wells overlap, well interference can occur.

In some regions, the amount of water in the aquifer is limited due to geology making the groundwater resource especially vulnerable to depletion. There are several areas in Polk County that have been identified as limited water areas. This designation effects new development of land for housing and other land use.

Since wells draw water from aquifers below the earth’s surface (in some cases, many hundreds of feet below the surface), the amount and accessibility of this water can be altered by geologic events including earthquakes, volcanoes, and mudslides.

In diagnosing limited water problems, consider the possible effects from recent geologic activity. The activity may not be considered a “large” event, but something smaller and not felt on the surface can still affect the aquifer.

Sometimes limited water or issues with water coming from your well can be tied to the pumps we use to pull water from the aquifer.

Clogging
- Wells and well components require periodic maintenance to ensure efficiency. Pumps should be adequately screened. In addition, sometimes pumps can become clogged from small bits of debris that have entered the bore hole over time. Contact your well or pump contractor to discuss pump maintenance.

Malfunction
- While pumps can last for many years, they sometimes need to be serviced or replaced. If you think your pump is not functioning properly, contact your well or pump contractor.

Pump Placement
- Pumping a well will cause a cone of depression to form in unconfined aquifers.
- If the water level within the cone of depression drops below the depth of your pump you will be temporarily unable to reach water. Decreased water demand will allow the water level to rise again if the aquifer is not already depleted.
- In some cases your pump can be lowered to increase access to aquifer water. Consult with a well or pump contractor to determine if this is an option.

Sometimes limited water can be a result of issues with the well itself. All wells may be put in to the same construction standards, but wear differently over time. Decreased well efficiency can sometimes be associated with the following:
- Deposits in the well bore hold (this can occur naturally and over time the deposits need to be cleaned out).
- A well that was never fully developed
- Inappropriate screening to allow for free water movement (wire wrap screens are usually preferable to slotted screens).
- Bacterial deposits (e.g. iron bacteria)
- If you know your well is shallow and you have had water supply problems in the past, you might consider deepening your well. If at all possible, contact the original contractor who constructed your well.

If your well is unable to meet your domestic water needs you will need to consider either deepening the existing well or drilling a new well. DO NOT attempt to deepen your well or construct a new well without the help of a licensed well contractor. DO NOT pour water from another source into your well. Your well is connected to an aquifer and is not a storage device.

Never Experienced Water Issues??
Be sure to Monitor!
- Note changes in water pressure. Reduced water pressure may be a forewarning of a lowered water table and aquifer depletion. However, keep in mind that loss of water pressure may also indicate well inefficiencies or problems with your pressure tank.
- Talk to neighbors who may be drawing water from the same aquifer. The more information you have about the water level in your aquifer, the better prepared you and your neighbors will be for ensuring that your water needs are met.
- Protect your pump. If you have not already done so, you can install an automatic low-flow shutoff switch (“pump saver”) that will protect your pump in the event of a dry well. This shutoff can be easily installed in the control box for your well pump, and typically costs under $150.
- Additional water storage devices. Storage devices such as above ground holding tanks and underground cisterns may provide needed water while allowing more time for the aquifer to recharge during the dry periods.

Adapted from http://wellwater.oregonstate.edu/limited-water
It’s Harvest Time!
Drive Carefully

Remember to drive carefully and be patient with farming equipment on the roads. Equipment operators do not enjoy having to drive on roads and are trying their best to share the road. Please pass them only when it is safe and always use caution.

Crop Notes – July/August

General management
• Use harvest season to scout for vole activity and take advantage of baiting opportunities over the summer.
• Make sure seed moisture is acceptable for storage: below 12 percent for grass seed, and below 14 percent for grain.
• Continue to scout spring wheat and spring-planted grasses for cereal leaf beetle.
• Test your soil after harvest to begin your plans for fall nutrient/lime applications. Please be aware of potential issues with the Sikora pH buffer test. We can only provide accurate lime recommendations with results from the SMP buffer test.

Grass
• Scout for moths (sod webworm, cutworm, armyworm) during and after harvest and determine if you should plan for control of eggs and small caterpillars on fall regrowth or new seedlings.
• Decide your best option for post-harvest residue management. Both full straw load and baling have pros and cons, and can result in successful grass seed yields. Take into account nutrient removal, fuel cost, and price for bales. See recent OSU grass seed production residue management guide: https://beav.es/2Yn
• Be sure to submit modified land history applications before working any ground.

Wheat
• Avoid sprout damage in wheat by not delaying harvest. Art Deco and Biancor are the earliest maturing, followed by Goetz.
• Reduce problems with temperature, airflow, and moisture by storing grain levelled rather than in peaked piles.

Mint
• Nitrogen applications should taper off in early July to reduce potential leaching losses.
• Scout fields for caterpillars and flea beetles.
• Contact Will Jessie if interested in Coragen control of mint root borer and cutworms. Most effective application timing is expected to be - July 8.

Upcoming Events

September 18th-19th
• OSU Fall Seed Crop and Cereal Production Meetings
• West Salem - 8:30 a.m. at Roth’s IGA conference room
• Albany - 1:30 p.m. at the Linn County Fair and Expo center
• Forest Grove - 8:30 a.m. at the Elks Lodge

November 12th-14th
• Willamette Valley Ag Expo - Linn County Fairgrounds
• http://wvaexpo.com/

December 9th-10th
• Seed League – Salem Convention Center
• https://www.seedleague.org/

Soil Acidity and pH Buffer Tests

By Will Jessie, Field Crops Extension Agent Linn, Benton and Lane counties

Although some crops are relatively tolerant of mildly acidic soils, low pH is a perennial problem for growers in the Willamette Valley. Annual ryegrass can often perform well when soil pH is lower than 5.5, but substantial yield depression can occur rapidly as pH approaches 5.0 and below. It is because of this we like to provide reminders that soil testing and lime applications are of critical importance to seed production. It’s worth noting here that a soil pH test does not account for the vast majority of acidic ions that remain bound to soil particles. This is why most growing regions use the SMP buffer test to determine whether lime is needed and how much to apply.

Over the past several years, soil testing labs across the country have switched from this SMP buffer test to the Sikora buffer test. Results from the Sikora methods correlate strongly with the SMP in most production regions but appear to diverge significantly in Western Oregon’s soils. This discrepancy can result in a soil pH value several tenths lower than the buffer test result and suggest that although soil pH is low, lime shouldn’t be applied. This can obviously cause some serious head-scratching and concern as we consider preparing ground for a long-lived fescue stand or – even worse – a filbert orchard.

It is because of these issues that OSU can only provide reliable calculations of lime requirements when the SMP buffer test is used. We recommend that when having soil tested for liming needs, request the use of the SMP buffer test to ensure the results can be interpreted accurately.
Purchasing Hay for the Coming Year

By Shelby Filley,
Regional Livestock & Forage Faculty

Now is a great time to make sure you have enough good quality hay stored up for your livestock. This is especially true if you were short on feed last winter, and got caught having to pay very high prices for hay. Often, hay purchased right out of the field is more economical than buying it once in storage. And, you can scout around and find hay that was harvested early, rather than hay cut late into July. Usually, this late cut forage is of advanced maturity and of low quality (fully headed out seed heads and fibrous stems).

Another possibility is that if you already have put up plenty of exceptionally high quality hay, you may be able to profit some from your hay inventory. You could sell a portion of your higher quality hay and buy hay that more closely fits the needs of your livestock.

The hay you store and feed does not usually, nor does it need to, perfectly match the nutrient requirements of your livestock. Because the ruminant animal uses microbial enzymes to digest fiber, lower quality forages, including some standing forage in the pasture, can be utilized by these livestock if a protein supplement is provided. Alfalfa hay is one of the most economical protein supplements available. And, you only have to feed a protein supplement every other day or every three days. This is because the ruminant can recycle nitrogen from the protein through its liver and back into the rumen to keep the microbes happy.

There are two steps in making sure you have enough hay of the correct nutritional value. The first step is to calculate the amount of hay you need per cow, sheep, or other herbivore. Most livestock will eat about 2.5 to 3.0 percent of their body weight in dry feed. So, a 1,200 pound cow will eat about 36 pounds of dry matter per day (1,200 x .03); and a 134 pound ewe will eat about 4 pounds of DM per day. The rule of thumb used to be to store two tons per cow for the winter, but lately there have been longer periods (summer and winter) of low productivity in the pastures and closer to three tons of hay per cow may be necessary to keep in reserves.

The second step in storing up hay for livestock is to make sure it has the appropriate nutrients your animals need. Have the hay tested for protein and energy content. Borrow a hay probe from your local OSU Extension Service, take samples from 20 or so bales of the same lot, combine these subsamples into one composite sample, and send it to a certified laboratory. If you have more than one lot (different harvest or purchased hay), collect separate samples of each. See the OSU “Beef Nutrition Workbook” at https://catalog.extension.oregonstate.edu/em8883 for information on evaluating forages, animal requirements, and feeding and supplementing livestock. Also, look for the OSU Sheep and Goat Nutrition Workbook this winter.

For current prices of various qualities of hay in the Pacific Northwest and elsewhere, see https://www.ams.usda.gov/ market-news/hay-reports. While there is a wide range of prices that can be found in western Oregon, this report will give you a good idea of the going rate for hay. Fair and Good quality hay is sufficient for a base forage for most of our livestock. Supreme and Premium qualities are good for supplementation of the good and fair quality hays. Consider having a truck load of hay delivered to your farm and selling excess to neighbors who could otherwise get stuck with low stores this winter. You will need a good storage facility for all of it – or work out a group purchase and have it loaded into neighbors barns before the rains come.

Sometimes winter and spring weather conditions reduced spring forage growth, and producers find they have too many livestock for the amount of feed they have stored away. Consider culling undesirable animals. Have your veterinarian pregnancy check your cows and ewes and get rid of the open ones promptly while market conditions are favorable. Cows are normally culled in the late summer or early fall after calves are weaned, and therefore, the market is flooded and prices are lower at that time compared to the winter or spring months.

Another option in times of forage shortages is to feed grass seed straw or grass screening pellets. There are two things you should be aware of when buying grass straw – endophyte concentration and nutrient content. As you may know, endophytes are a type of fungus that helps protect the plant from disease. They are bred into turf grass type fescues but are toxic to livestock. The forage-type fescues and ryegrass sold in Oregon are endophyte-free. If you choose to buy fescue or ryegrass straw products, make sure they are low-endophyte or blend them with another feed so the total diet is low in endophyte concentration. Testing is advised, but if you don’t do that, at least blend them 50:50 with another forage.

Feeding some grain is another way to conserve forage. Depending on the cost of grain and hay, it may or may not be more expensive. Slowly adapt the animals to grain diets by substituting a few pounds of grain for a few pounds of hay. Every few days increase the amount of grain in the diet, until you reach the desired grain level. This could be done over a period of 2–3 weeks.

Please let me know if you have any questions or comments on storing and feeding hay. Buy hay early and be prepared!
Why Do I Need Water Rights for Irrigation?

By Melissa Fery,
OSU Small Farms Program

Many landowners are unaware that a legal right is needed to use surface water and groundwater for irrigation purposes. There are many demands on Oregon’s water resources, which are publicly owned. Even though the water — a stream for example — runs through your property, it doesn’t belong to you; it belongs to everyone in Oregon. The same is true with groundwater in aquifers deep in the soil. There are many beneficial uses of water. Irrigation for crops is just one. Water is needed for domestic use for people and animals, city drinking water, industrial uses like manufacturing, and some is needed to remain available in-stream for fish and other aquatic life and even for recreation purposes.

Oregon water law dates back to 1909, and includes four basic provisions.
• Beneficial use without waste, by using water for personal and public good.
• Priority of the water right, “first in time, first in right” concept.
• The right to use the water is attached to the land.
• Maintain rights by using the water, at least once every five years.

Water rights clearly define the specific use of the water. The right will indicate the specific source, where the water can be used, and how much (rate) water to use. The domestic well that supplies your home with water is not available to irrigate more than a 1/2 acre, which is intended to water a lawn and family garden, not any crops grown to sell! If you intend to grow irrigated crops including pastures, you need to try to obtain a water right if your property doesn’t have one.

The Oregon Water Resources Department (OWRD) regulates water law, including water rights. To find out if a specific property has water rights to surface water, go to http://www.oregon.gov/owrd/ and click on Water Rights. To look up a well log to determine if a property has a well drilled specially for irrigation or to learn more about a domestic well, go to the same website and click on Well Construction and Compliance.

Applying for new water rights is a possibility depending on where the property is located. We suggest contacting your local OWRD Watermaster to find out if applying for a water right seems like a feasible option, if you are having trouble searching for specific water rights or well logs, or if you want to better understand Oregon water law.

• Lane and Linn Counties: Lanaya Blakely, District 2, 125 East 8th Avenue, Eugene, OR 97401-2926 Phone: 541-682-3620
• Benton and Polk Counties: Joel Plahn, District 16, 725 Summer St NE, Suite A, Salem, Oregon 97301 Phone: 503-986-0889
CROP TALKS
IN THE FIELD

Walk a mile on someone else’s farm

Crop Talks are farmer-to-farmer educational opportunities that consist of a tour of a farm by the farmer and a discussion about their area of expertise or interest during the growing season. These are opportunities to get out into someone’s field, see their practices in action, ask questions, and connect with other local farmers while doing it!

Participants are encouraged to bring questions and network after the tour.

For more information, visit extension.oregonstate.edu/smallfarms/crop-talks

Columbia River Gorge
- Jul 9 – Small Farm Entrepreneurship
- Aug 13 – Transitioning orchards and understanding tree fruit varieties
- Sept 10 – Multiple farms on the same land

Willamette Valley
- Jul 23 – Blueberry Production
- Aug 8 – Dairy Sheep and NRCS Infrastructure

New Crop Talks are popping up all season long. Visit our website for the most up-to-date list.

Small Farms Are a Big Part of Oregon’s Agriculture

The 2017 USDA Census of Agriculture showed that the number of small farms is increasing in the Northwest. The USDA defines “small farms” not by acreage, but rather by sales. Any farm that makes less than $250,000 a year qualifies as “small.” Oregon had 34,807 small farms in 2017, or about 92 percent of all farms statewide. Oregon is adding more small farms and more farms with low sales:
- A higher percentage of all farms in Oregon are small farms with less than 10 acres (33.3 percent of all Oregon farms and 13.4 percent of all US farms)
- Small farms (less than 10 acres) are the fastest growing farm size in the state and increased 7.6 percent from 2012 (increased 2.8 percent nationally)
- Oregon’s average farm size decreased to 424 acres (441 acres nationally); half of all farms in Oregon are less than 20 acres (75 acres nationally)
- The number of farms with sales of less than $2,500 increased 19 percent (decreased by -3 percent nationally)

When I told the 4-H Food + Fun club youth we were headed to a grocery store for our field trip, I got some apprehensive looks. Previously, we had visited the coast in Newport, OMSI in Portland, and Get Air Trampoline Park in Salem, so initially the grocery store field trip sounded a bit anticlimactic to them. However, the youth had a great time on our Safeway Scavenger Hunt field trip with major learning moments and team bonding.

The morning started off with the youth being given a piece of paper with instructions for the day. It went something like this: “It’s a sunny spring day, and you want to have a picnic for you and all of your friends. You are given $50 to buy ingredients for a healthy picnic for you and 3 others. Your picnic must be as healthy as possible, may not require stoves orovens, and must be within your budget.”

So, as good experiential learning goes, we gave them pencils and the freedom to choose what they were going to write on their grocery lists and place in their shopping carts. They had to problem-solve when it came to accommodating preferences or dietary needs within their group. Once they had a grocery list procured, we hopped in vans and drove to the local Safeway. The whole shopping experience was focused on youth learning, so even though a student worker chaperoned them; they only offered helpful suggestions to read labels, tips for shopping in the store, and how to be respectful shoppers.

Each group spent over an hour in the store, carefully perusing the aisles for their products, reading the labels, checking the prices, and using communication to reach group consensus. Before they reached checkout, I audited their food selections to make sure they fit within the guidelines of the field trip given earlier that morning. Each group successfully found healthy and delicious food items to fit their budgets. One group was paying attention during checkout and noticed that some items rang up without the advertised coupons and got it fixed! When asked if they learned anything from this trip, they said they would feel more comfortable and confident to go to the store and know how to get good products and deals (hooray!).

Since we had some good food to prepare for our picnic, we spent the rest of the time socializing at a park with music and games. Most of the students were sad to hear the program was ending as the grant funds have expired, but we hope they continue to advance their skills and participate in their local 4-H programs. On a happy note, CYFAR is sending more than 15 youth to summer camp where they will continue to grow and thrive!

A huge thank you to: Carolyn Ashton for providing leadership to this five year CYFAR grant; Emma Suzuki, Janna Batara, Jamie Gibson, and Lisa Perrett for being the best students workers one could ask for; Michele Webster, Laurie Gibson, JoLynn O’Hearn, and Kelly Cotter for awesome office support; Linus Pauling Middle School and Calapooia Middle School for your collaboration, space, and trust with your students; Nancy Deringer for coaching; and Marc Braverman for evaluation expertise. It has truly been a fun and healthy time in the Linn and Benton 4-H programs!
Ag Day at Lafayette Elementary a Big Hit

Llamas, Tractors, Bunnies, Oh My! The field at Lafayette Elementary was alive with the sounds of children squealing, chickens crowing, a donkey braying, and smiles from the Dairy Princess.

This was all part of Agriculture/Natural Resource Day held at Lafayette Elementary on Friday May 31. The event was the finale to the 4-H Community Outreach classes that Linn County 4-H faculty Andrea Leao and Maggie Livesay had been teaching every Wednesday at the school.

Fourteen activities were spread out on the school grounds and included composting, pollinator health and identification, tractors, sheep, chickens, alpacas and many more. This all day event gave the 325 students an opportunity to explore and experience agriculture and natural resources first hand.

Many of the students had never had the opportunity to pet farm animals, hold a chicken or dig through compost to see what living organisms might be in there. When talking with the students both during and after the event they were so excited to share the things that they learned! Did you know that you can use the milk from goats to make soap? Did you know that without native bees pollinating our plants we would only have bananas and corn?

Students also learned that their food does not just come from the store; it starts at a farm first. The Linn County Dairy Princess, Emily Henry, came and shared about the importance of the dairy industry with the students as well as talking about the difference between the beef calf that they were petting and the dairy cow that makes the milk they drink each day. There were two mini horses and one mini donkey on hand for the students to pet and learn about, along with goats that loved to be petted and brushed. Kids also got to make a dirt baby to take home and grow out their grass hair.

This event would not have been successful without the 36 community volunteers that came together to teach at each station. These volunteers not only offered their time and knowledge, but also brought in the animals, tractors, insect identification and all the supplies to make the event a success. Thanks to all the amazing staff at the school that helped set up, provided tents for shade for each station, and the teachers and staff that helped navigate the students throughout the event.

Mikayla Calvery shares interesting facts with students about her female alpaca and its young.

4-H Volunteer Mike Albrecht helps students discover the variety of critters that help make compost.

Lindsay Walker helps students make Dirt Babies from a nylon, potting soil and grass seed.
Benton County 4-H Horse Fair

Come watch our Benton County 4-H horse members compete at fair. It runs Thursday, July 18–Sunday, July 21 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’s no admission charge for this event. Members have worked hard all year and love to have spectators attend!

Volunteers Needed at Fair

Want to earn a one-day admission pass to the Benton County Fair? Just volunteer two hours of your time during July 31–August 3 in the 4-H Exhibit building, helping monitor the 4-H Family and Consumer Sciences, Arts and Sciences Exhibits, and answer questions from the public. We are looking for two-to-three people per shift.

Please call the Extension office at 541-713-5000 to volunteer.

Regional Archery Tournament

Benton County 4-H organized and hosted a brand new regional archery tournament held at the Benton Bowmen grounds in Philomath. The team of 4-H youth and volunteer adults planned, marketed, and set up the event in late May. 4-H members from as far as Hillsboro came to participate in the new tournament. Special thanks go to Benton Bowmen, Coastal Farm Supply, and Les Schwab for their support.

Benton County Fair

Hours:
• Wednesday & Thursday – 11 a.m.–11 p.m.
• Friday & Saturday – 11 a.m.– 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: $35 at the Fair Carnival Ticket Booths ($25 Advance)

Discount Days and Special Events:
• Wednesday: Family Fun Day! Gate Admission is FREE to kids 16 and under all day

Entertainment:
• Trevor Tagle, Wednesday, July 31, 7 p.m.
• Jackson Michelson, Wednesday, July 31, 8:30 p.m.

2019 Benton County Fair & Rodeo – “Tall Tales and Animal Tails”

Wednesday, July 31 - Saturday, August 3

2019 Benton County Fair & Rodeo

Tall Tales & Animal Tails

July 31 – August 3 | Wednesday – Saturday | Corvallis, Oregon

2019 Benton County Fair & Rodeo

Willamette Valley Fiddle Contest - Saturday, August 3 – come see Local, State and National fiddlers compete on the Oak Grove Stage.

Information about the 2019 Benton County Fair can be found at: http://www.bentoncountyfair.net/
Celebration of Student Learning

Mt. View students teach Muddy Creek students the proper way to grade and weigh eggs.

Muddy Creek students share their project about Bug Hotels for Ladybugs.

On Tuesday June 4, two-second grade classes met and shared in a special celebration of student learning. Twenty-three students from Muddy Creek Charter School and their teacher Cathy Neff traveled to Mountain View Elementary to visit Danielle Black’s class of 24 students and share their projects and a lunch. The idea blossomed after Neff’s students had honed their presentation skills at the 4-H Wildlife Steward’s Summit at Kings Valley Charter School on May 2, and she was looking for other opportunities for them to share their awesome presentation skills.

Ms. Black’s students had been interested in 4-H Animal Science projects all school year and had learned about and raised chickens in their schoolyard. The Muddy Creek students shared their colorful Bug Hotel projects, and in turn, Black’s students gave small group presentations about their poultry project including the parts of a chicken, life cycle, grading and weighing eggs, farm vs. factory eggs. Their presentations also included a visit to the chicken coop to feed and learn more about the responsibility of raising the chickens.

4-H Spring Classic Results

Eighteen 4-H members competed in the May 4-H Spring Classic in Redmond, Ore., and our Benton County 4-H members did exceptionally well!

Participants included: Charlotte Alan, Sydney Bahler, Ben Baisted, Kaylee Buset, Carly Dowless, Madison Gray, Lindsey Jameson, Alexi Lindley, Rebecca Lorain, Abby Loyd, Megan Mayjor, Cheyenne Phillips, Chloe Roderick, Trinity Serafin, Hayley Sumners, Evelyn Vega, Rachael Vorster, and Alora Wright

Special honors went to:

- Benton Intermediate Hippology Team (1st); Rachael Vorster (1st); Madison Gray (6th);
- Benton Senior Hippology Team (3rd); Kaylee Buset (2nd);
- Benton Intermediate Horse Bowl (1st); Madison Gray (1st); Rachael Vorster (5th)
- Benton Senior Horse Bowl; Kaylee Buset (7th);
- Benton Intermediate Horse Judging Team (1st); Rachael Vorster (1st); Lindsey Jameson (4th);
- Benton Senior Horse Judging Team (6th);
- Intermediate Small Animal Presentation Evelyn Vega (1st)
- Intermediate Individual Horse Presentation Abby Loyd (4th);
- Benton Intermediate Rabbit / Cavy Bowl Team (1st); Alexi Lindley (1st); Trinity Serafin (4th); Evelyn Vega (5th); Ben Baisted (6th);
- Benton Intermediate Rabbit / Cavy Judging Team (1st); Charlotte Alan (2nd); Trinity Serafin (4th); Alexi Lindley (5th); Ben Baisted (6th).

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.

National Beekeeping Essay Honor

Benton County 4-H Member Evelyn Vega has won the National 4-H Beekeeping Essay Contest! This is the first time in recent history that a 4-H member from Oregon has achieved this honor.

Here’s an excerpt from her award-winning Beekeeping Essay.

“If you live in Oregon, or have come for a visit, you’ve probably gone for a beautiful walk in the woods in the warm summer weather. That means you’ve also experienced blackberries. With their amazing sweet flavor and juicy texture, they are not only a good snack, but a great honey varietal.

Honey bees live in Oregon, too. During the summer, they forage through the fields and forests to find the beautiful blackberry blossoms. They collect pollen and nectar from the flowers and bring it back to the hive. In doing so, the bees are helping pollinate the blackberries and they are feeding the hive. The nectar gives the bees energy and carbohydrates and helps make honey, and the pollen gives the bees protein and fat. While they forage and collect, honey bees make an incredible blackberry honey that everyone enjoys.

There are many ways that blackberries are unique by themselves and in relation to bees.

Blackberries are the primary nectar flower in Oregon, and because blackberries are so rich in nectar, bees are naturally drawn to their flowers (Gooding). Blackberries are one of the plants that produce both nectar and honey, this is convenient for the bees because they need both of those resources to survive. While the bees are out looking for nectar, they notice a lot of blackberries. For example, in 2017, the Oregon Department of Agriculture reported 6,300 acres of farmed blackberries (Ashby). That in addition to all of the wild blackberries makes it the largest natural source of pollen and nectar. Also, according to the USDA, Oregon was the number one producer of blackberries in 2009 (Fackler).

To read the essay in full, please visit the Benton County website at https://extension.oregonstate.edu/4h/benton.
Linn County
Tree Farmer of
the Year Tour

Tim and Kathy Otis are Linn County’s 2019 tree farmers of the year. Together, with a lot of help from family, they manage more than 370 acres of forestland in the Middle Ridge area between Brownsville and Lebanon. Much of the property has been in the family for more than 150 years and is now jointly held by Kathy and her three sisters, Jill Hauptman, Jan Sheets, and Deanna Russell. The family holdings include 135 acres of farmland and 25 acres of restored riparian woodlands along the Calapooia River east of Brownsville.

The historical importance of the property to the family will be emphasized on the tour. Forestry-related activities will include discussion of a recent blackberry control project and thinning in an older tree stand.

The tour will be Saturday July 6 at 3 p.m.

The tour location is near Waterloo, 1.2 miles up Ingram Road from Highway 20. Tree tour signs will guide visitors.

The Linn County chapter of the Oregon Small Woodlands Association (OSWA) co-hosts the annual event. All are welcome. Guests are asked to bring a potluck dish and service. Drinks will be supplied.

By Brad Withrow-Robinson, OSU Forestry & Natural Resources Extension agent for Benton, Linn and Polk counties.

People enjoy and cherish Oregon’s forests for a number of reasons. High among them are the beauty and the variety of plants and animals that live there.

While most of us picture older forests when we read that, we would be wrong to think of that as the complete picture. Nonetheless, a large part of our emotional, scientific and social energy is directed towards those older forests.

I recently attended a workshop and tour that focused on another stage of forest development: a stage that many people would not recognize as, or even call a forest. It is the often-unsightly mix of living and dead that is left after a major disturbance like a wild fire, or a clearcut harvest. Ecologists call this stage “Early Seral” forests. I think of them as “Forests on the Rebound.”

If a forest has been destroyed by fire or harvest, how can it be said to be rebounding?

Despite the scarred appearance and loss of the forest tree canopy, it is important to recognize that these forests have been disturbed, not destroyed. Yes, most of the trees are gone but the sites still contain many critical parts, legacies of the previous forest stage. Shrub species, such as snowberry, salal and vine maple, and trees, like chinkapin and bigleaf maple, and many flowering herbs will all resprout and flourish in the open sunshine. Other trees and shrubs that propagate by seed, such as alder, Douglas-fir, hemlock and cedar also often quickly establish. Many (though not nearly all) of the plants and animals that were there before, are generally still there a short while after the disturbance. This often sets the stage for a similar forest to rebound and eventually reoccupy that site.

These rebounding forests are often super-diverse. Not only do they contain the plant legacies from the earlier forest, they quickly collect many other new, sun-loving species of plants that were not part of the previous forest. These new additions emerge from the seed bank or drift in on the wind to take advantage of the sunny new environment on the forest floor. This is the recipe for great plant diversity.

These new, radically different forest conditions are exactly what many animals need, too. A whole host of animals are keying in to, and dependent on this stage of rebounding forests. Deer and elk, migratory songbirds and bats, pollinating bees and butterflies all flourish among the rowdy, diverse vegetation of the rebounding forest.

But many of these animals, notably certain songbirds, bats and bees have been declining in recent years.

There is concern that significant changes in the abundance and nature of these recently disturbed early seral habitats over recent decades may be a factor in the decline:

- A dramatic decrease in harvest on federal lands has reduced the amount of young, rebounding forest habitats there.
- Harvest continues on private lands, but reforestation practices and policy encouraging a rapid “green up” have generally shortened the amount of time in the rebound stage between harvest and crown closure. Reforestation practices reduce the amount of broad-leaved shrubs and other vegetation – things we know are important habitat pieces. So, although there is lots of young forest plantations on private lands, they may not be functioning well as habitat.

Continued on Page 20
Carbon for Conservation

By Kevin Seifert, Linn SWCD

Environmentally-minded farmers are well aware that building up soil carbon is one key to achieving high yields without chemical inputs. It’s through the expansion of global carbon markets – where polluting corporations purchase “carbon credits” to offset their carbon emissions – that farmers are starting to get paid for adopting these practices.

When these polluters purchase carbon credits, the money goes to another company, organization, or project that has prevented an equivalent amount of carbon dioxide or other greenhouse gases (GHGs) from entering the atmosphere (which can include a farmer). The transaction is mitigated by a broker, called a carbon registry. In the past, wind farms, solar panel facilities, and reforestation projects were among the most common recipients of carbon credits, but farm-based carbon credits are becoming more widely available. Notably, Australia, Alberta, Kenya, and California now have active programs to reward on-farm carbon sequestration.

Measuring the actual amount of carbon sequestered in soil and plants is a costly and inexact science, which is one reason that farm-based approaches haven’t been widely accepted by carbon credit programs yet. (It’s much easier to quantify reduced carbon emissions with things like solar power.) Rather than measuring the carbon sequestered on each farm, carbon credit programs rely on the average carbon sequestration ability of particular practices (like adding organic matter to the soil, planting cover crops, and reducing soil disturbance) that have been tested over time and scientifically verified. The bottom line is that farmers aren’t expected to calculate their own soil carbon levels – it’ll be inferred by the credit-granting organization based on their farming practices.

To help farmers get an idea of their current climate impacts and prospects for earning carbon credits, however, the USDA now has a free web-based tool called COMET-Farm, which provides an approximate carbon footprint based on user-supplied data and allows farmers to apply different land management scenarios to see which has the greatest carbon sequestering ability.

So how much might a farmer make for their soil carbon? Not much, at least not yet.

Here is how it works: Land-based carbon sequestration is measured in metric tons per hectare (2.5 acres); one metric ton earns one carbon credit, making the math easy. In California – the only state in the US with a full-fledged cap-and-trade program – the current value of a carbon credit is around $12 to $13. (Farmers in other states, by the way, are eligible to earn credits through the California carbon market.) Alberta, which has the most robust carbon market in Canada and rewards several agricultural practices with carbon credits, raised the price of carbon credits from $15 to $30.

According to data analyzed by the USDA, farmers who convert to no-till practices and start using cover crops may achieve a net carbon gain of only one or two tons per hectare each year, though diverse agroforestry systems in the tropics may achieve improvements of 30 or 40 tons per hectare. For example, if a farmer with 100 hectares (250 acres) was able to sequester 2 tons of carbon per hectare and sell the credits for $15 each (100 hectare A — 2 tons A — $15), they would net $3,000. Depending on the practice, that income might accrue yearly, or it might be a one-shot opportunity.

There are various caveats. Not just any farmer can go sign up for carbon credits based on their soil conservation practices. The rule of thumb is that only farmers who make a positive change to their land management approach are eligible for credits. In other words, is as it currently stands, if you already use no-till cultivation techniques, enrich your soil with compost, and plant cover crops, you can’t earn money for those practices. Farmers that are taking over degraded land that has been farmed with conventional practices have the most to gain by getting involved in the carbon market.

It’s also important to note that most of the agricultural practices that have been approved for carbon credits to date are not geared to reward eco-friendly carbon farmers, but are intended as incentives to get agricultural polluters to clean up their act. The main beneficiaries thus far are corn growers who commit to reducing nitrogen fertilizer use (which releases nitrous oxide, one of the three main GHGs); dairy farmers who capture methane (another major GHG) from their manure lagoons and convert it to electricity; and rice producers who take steps to minimize the naturally occurring methane emissions of their paddies.

That trend is starting to change, however. Last year in California, for example, a new carbon credit “protocol,” as the rules governing carbon sequestration practices are called, was approved: spreading compost over grazed grasslands, the type of landscape where grass-fed beef and other pastured animal products are raised. This was largely thanks to a group of dairy farmers north of San Francisco called the Marin Carbon Project. Their research proved that a 1/2-inch dusting of compost resulted in roughly 1 metric ton of carbon captured per hectare per year. Notably, they found that a one-time application of compost jumpstarted biological processes in the soil that resulted in another ton captured annually for many more years, without the addition of more compost.

To receive compensation for their efforts, farmers in the United States must sign up with a carbon credit registry, such as the Climate Action Reserve, the American Carbon Registry, or the Verified Carbon Standard. These organizations provide third-party verification much like an organic certifier – an inspector will come out to your farm on a regular basis to make sure you’ve implemented the practices in accordance with the protocol.

Dr. Adam Chambers, an air quality scientist with the USDA who helped to develop the COMET-Farm tool, says the data it provides should pave the way for farmers to monetize carbon sequestration practices as the carbon market matures. How quickly the market develops depends largely on political forces – climate-friendly California became the first state to institute a mandatory cap-and-trade program in 2012, but if the federal government were to follow suit, the value and trading volume of the carbon market could heat up quickly.

If that occurs, I think farm-based carbon credits may be positioned to play a significant role. Different types of credits seem to have different levels of return, in reference to the corporate polluters who purchase credits and their interest in promoting the results of their good deeds. And the agricultural credits seem to be generating interest because these producers are growing food and fiber for the world. Making productive use of the land, while improving soil quality for future generations and making an extra few bucks – who could argue with that approach to farming?

Is sequestering carbon more than just a way for big business to get rural communities to make up for their pollution? Helping encourage farming techniques that enhance soil quality, which enhances water quality, is always on the radar of Conservation Districts. It will be interesting to see how carbon is viewed moving forward.

http://extension.oregonstate.edu/linn
## Calendar of Events for Linn & Benton Counties

### July

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
</tr>
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<tbody>
<tr>
<td>*</td>
<td>Linn and Benton Hands-On Food Preservation Series on Tuesdays at the Linn County Extension Office, registration required. See the Family and Community Health pages for details.</td>
</tr>
<tr>
<td>6</td>
<td>Linn County Oregon Small Woodland Association Tree Farmer of the Year tour, registration required</td>
</tr>
<tr>
<td>9</td>
<td>Crop Talk: Seed Production, 6-8 p.m., at Adaptive Seeds in Sweet Home, free to attend, registration required</td>
</tr>
<tr>
<td>8</td>
<td>Lebanon Second Monday Lunchtime Gardening Series – Growing Your Own Tea, noon-1 p.m., The Lobby Coffee Shop, 661 S Main St, Lebanon</td>
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<tr>
<td>13</td>
<td>Walk in the Garden – Edward C Allworth Veteran's Home: Harvesting Garlic, 9-10:30 a.m., Lebanon</td>
</tr>
<tr>
<td>13</td>
<td>Sweet Home Saturday Gardening Class series: Growing/Pruning Roses, 11 a.m. to noon, Hoys Hardware, 3041 Main St, Sweet Home</td>
</tr>
<tr>
<td>16</td>
<td>Nitrate Screening, 2-6 p.m., at the Sweet Home Farmers Market</td>
</tr>
<tr>
<td>17-20</td>
<td>Linn County Fair at the Linn County Fair and Expo Center, Albany</td>
</tr>
<tr>
<td>17</td>
<td>Evenings in the Garden, 6-7 p.m., at the Benton County Events Center and Fairgrounds</td>
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<tr>
<td>18</td>
<td>Small Farm School, 8 a.m. -4:30 p.m., Oregon City, registration required</td>
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<tr>
<td>18</td>
<td>Seed to Supper FREE Workshop: Fall &amp; Winter Gardening, 5:30-7:30 p.m., at the Benton County Events Center and Fairgrounds Demo Garden</td>
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<tr>
<td>18-21</td>
<td>Benton County 4-H Horse Fair, Benton County Events Center and Fairgrounds</td>
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<tr>
<td>21</td>
<td>Crop Talk: Blueberry Production at Kiger Island Blues, 5:30-8 p.m., $5 fee, registration required</td>
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<tr>
<td>July 31-August 3</td>
<td>August 3, Benton County Fair at the Benton County Events Center and Fairgrounds, Corvallis</td>
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</tbody>
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### August

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
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<tbody>
<tr>
<td>3</td>
<td>Walk in the Garden – Edward C Allworth Veteran’s Home: Winter Gardens, 9-10:30 a.m., Lebanon</td>
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<tr>
<td>8</td>
<td>Crop Talk: Dairy Sheep and NRCS Infrastructure Projects, 5:30-8 p.m., Junction City, $5 fee, registration required</td>
</tr>
<tr>
<td>10</td>
<td>Sweet Home Saturday Gardening Class series: Season of Color, 11 a.m. to noon, Hoys Hardware, 3041 Main St, Sweet Home</td>
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<tr>
<td>12</td>
<td>Lebanon Second Monday Lunchtime Gardening Series – Dahlias, noon-1 p.m., The Lobby Coffee Shop, 661 S Main St, Lebanon</td>
</tr>
<tr>
<td>15</td>
<td>Seed to Supper FREE Workshop: Composting &amp; Worm Bins, 5:30-7:30 p.m., at the Benton County Events Center and Fairgrounds Demo Garden</td>
</tr>
<tr>
<td>21</td>
<td>Evenings in the Garden, 6-7 p.m., at the Benton County Events Center and Fairgrounds</td>
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<tr>
<td>23-9/2</td>
<td>State Fair, Salem</td>
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<tr>
<td>31</td>
<td>Nitrate Screening, 9 a.m.-1 p.m., at the Corvallis Farmers Market</td>
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### Forests on the rebound continued from Page 18

- Wildfire remains a source of disturbance in western Oregon, but not on the scale recently as it has in past.

**What are the effects of these changes?**

Research teams including scientists at OSU, private landowners including Hancock Forest Management and Weyerhaeuser, and agencies including the US Geological Service, and many others formed to study this. They designed a large randomized study, replicated in eight locations across the northern Coast Range comparing different intensities of vegetation control (using herbicides) during reforestation. The workshop highlighted a near-decade of coordinated research and other efforts to understand the impacts of forest management practices on these rebounding (early seral) forests, and the wildlife that depends on them.

The broad take home message was that biodiversity is compatible with intensive forest management practices. Young forest plantations can (and likely do) provide habitat for many types of animals that depend on early seral habitats. Some species are provided for better than others. How to improve conditions for those animals that were sensitive to management practices was the topic of vigorous conversation at the workshop, and a likely focus of future research.

For more information about the early seral workshop, including abstracts of the presentations, visit their website at https://www.forestbiodiversity.org/earlyseral.