



# Country Living

Provided to you by the  
**OSU Extension Service Columbia County**  
505 N. Columbia River Hwy, St. Helens OR 97051  
Phone: 503.397.3462 ▪ Fax: 503.397-3467  
Email: [chip.bubl@oregonstate.edu](mailto:chip.bubl@oregonstate.edu)  
Office hours: Monday-Friday, 8 a.m. to 5 p.m.  
The office will be closed Fridays from Noon to 1 p.m.  
Website: <http://extension.oregonstate.edu/columbia/>

## November 2016

## Programs for you . . .

Listen to the *Gardening Spot* on KOHI (1600 am) radio - Every Saturday, 8:05 to 8:15 a.m.

- Nov. 1..... Scappoose Bay Watershed Council. 7 p.m., 57420-2 Old Portland Rd., Warren
- Nov. 3 ..... Demonstration Garden and other MG Extension Projects Planning Meeting. 10 a.m., OSU Extension Classroom, St. Helens
- Nov. 3 ..... Master Gardener™ Board Meeting. 10:30 a.m., OSU Extension Classroom, St. Helens
- Nov. 16..... Soil & Water Conservation District. 7:30 p.m., SWCD office-35285 Millard Rd., St. Helens
- Nov. 24-25 ..... Thanksgiving Holiday. Extension Service office closed
- Nov. 30-Dec 2. National Women in Sustainable Agriculture Conference. Portland. The 5<sup>th</sup> National Conference for Women will bring together farmers, educators, technical assistance providers and activists engaged in healthy food and farming to share educational and organization strategies, build technical and business skills and address policy issues aimed at expanding the success of women farmers and ranchers. Registration for the conference is \$200.; to to <http://2016wisa.org/>.



*Chip Bubl*

Chip Bubl, OSU Extension Faculty, Agriculture



Agricultural Sciences & Natural Resources, Family and Community Health, 4-H Youth, Forestry & Natural Resources, and Extension Sea Grant programs. Oregon State University, United States Department of Agriculture, and Columbia County cooperating. The Extension Service offers its programs and materials equally to all people.

## In the garden

### Light and dark

Woody deciduous plants measure increasing night length to engage their progression into dormancy. Leaves start to senesce, degrade the green chlorophyll, and transfer the useful mobile compounds into root, branch, and trunk reserves. An abscission zone forms where a leaf joins the stem and soon it breaks off and falls. The bud scale grows a covering protecting the bud against the cold. Once fully dormant, a given tree or shrub species is generally uninjured by the coldest temperatures that it originally evolved in. For perennial plants (herbaceous or woody), surviving winter is the name of the game.

Photoperiod sensing also triggers flowering in some plants. Poinsettias are native to Mexico and Central America and need at least 12.5 hours of darkness to flower. Greenhouse growers or a home gardener that kept their old poinsettia around will have to control the length of night the plant is exposed to if they want a Christmas poinsettia.

In mid- to late October place your poinsettias in a completely dark area (like a closet that you won't open) from 5 p.m. to 8 a.m. daily until red color starts to develop on the flowers or "bracts." Interrupting the darkness by even a few minutes may cause failure of the coloring. So does forgetting to put them in the dark for a day. After each night treatment, bring the plant out to as much sun as you have inside.

Once the plant has large, colored bracts, you are done and do not have to move the plant anymore. Here is a general time line for you adventurous indoor gardeners:

**Mid- to late October** – Begin giving poinsettias long nights (darkness from 5

p.m. to 8 a.m.). Cover with a cardboard box or black plastic bag or place it in a dark closet.

**Mid-November** – Color should be showing in the bracts.

**Early December** – Bract color should be almost complete. Plant can be brought out into ordinary light.

**December until February** – During this "forced" bloom, keep the temperature between 60 and 70 degrees. Poinsettias are particularly susceptible to cold.

Let the plant receive as much sunlight as possible during the day. Water regularly and thoroughly.

Throughout winter, fertilize once a week with a water-soluble fertilizer at half strength or less. Over-fertilization will cause the leaves to drop. Keep plant away from hot or cold drafts. Leaves may wilt if the plant is too dry, too wet or exposed to a draft. Never allow a plant to stand in water.

Yellowing of foliage may indicate insufficient light, over-watering or lack of nitrogen. Generally, a slight correction of the environment will correct any of these symptoms.

After blooming, the plant's bracts and leaves will begin to fall naturally. Discontinue fertilizing and reduce watering. Cut the plant back to 6 inches. Water only enough to prevent the stem from shriveling. When summer rolls around, repot the poinsettia if necessary.

When you see new growth, start watering regularly and feed every two weeks with a balanced (the three numbers on the label are the same) fertilizer. Pinch back stems as they grow to encourage branching. Grow it outdoors or as a houseplant. If grown outdoors, be sure to check for insect pests and treat if needed. Next autumn, start the cycle again.

*Edited from an article by Penhallegon and Pokorny, OSU Extension Service*



## Choosing landscape trees

Trees improve any landscape. They can make an aesthetic statement, provide wildlife benefits and buffer the house from environmental extremes of heat and wind.

What should you consider when choosing a tree for your property?

Will the tree fit the lot?

Think here about mature height and width of the tree. Western Oregon is a temperate rain forest. Trees grow well here. In fact, when you look at descriptions in books or catalogs about ultimate tree height and width, you are safest taking the highest number in the range for planning purposes. Many homeowners purchase trees only to remove them in 15-20 years when they outgrow their space. Don't crowd trees or try to manage them by constrictive pruning.

Will the tree perform well on your site?

There are a lot of elements in play here. Is the site in full sun, partial sun or fairly deep shade? Each tree species has an environmental niche that it evolved in and where it will grow best. What about soil conditions? A lot of new construction sites have rather poorly drained clay soils on which the house is built. The list of trees that do well in those soils is quite limited. Sometimes the drainage in clay can be improved to allow a slightly wider choice of plant material. In St. Helens, many older houses are built on basalt rock. These sites dry out fast in the summer. Topsoil may need to be brought in to create planting "pockets". Tree selection again is important on this tough type of site. Know the soils where you live and choose trees adapted to those soils.



Is the tree cold-hardy? This is what the hardiness zones are all about. In general, most trees sold here are more than hardy enough for our winters. We get into trouble sometimes when we try to stretch the limits and put in zone 9 plants into our landscapes. Our rare severe cold events usually thin those plants out. If you live in a "cold pocket", err on the side of more hardiness.

Is the tree disease or insect prone? Blue spruce gets several insects and diseases that disfigure the tree. Some flowering cherries are hard hit by diseases. Junipers on clay die after 15-20 years (if not sooner). Some, not all, crab apples and dogwoods are disease prone. All this is to say that there are choices to be made and the wise consumer will do some research on species and varieties that are more care-free.

Some trees may have poisonous fruit or foliage. Is that a concern for children or livestock where you live? Fence line plantings need to be researched for livestock safety.

There is increasing interest in planting native trees which may be hardier with less water (after establishment) and will support pollinators and other invertebrates, birds, and mammals.

Finally, is the tree invasive? Is it likely to throw root sprouts all over the lawn or spread seeds that will take root and grow? If you have questions in that regard, call the Extension office or look on line. The information source is important since there regional differences in the relative invasive nature of certain plants.

For information on these topics or other tree questions, check out the *Sunset Gardening Book*, call the Extension office or go on-line to the OSU Horticulture Department Ornamental tree and shrub web site: <http://landscapeplants.oregonstate.edu/>

## Native plant of the month: Cascara

Cascara trees are finally getting their due as a desirable native species in the landscape. I have always admired these nicely shaped, smallish (10-40 feet) deciduous trees. Cascara trees have undergone a name change. They were formerly known as *Rhamnus purshiana* but have emerged as a new genus with the same species name *Frangula purshiana*. The tree is in the buckthorn family.

Cascara bark is a subtly mottled gray with brown and white accents. The leaves are simple and arranged in an alternately along branches. On most sites, leaves are a shiny deep green with sharply incised veins and very tiny teeth along the edge. Usually the undersides of the leaves are a lighter or duller green, though not always. It is possible to confuse the leaves and bark with red alder but their growth patterns are quite different.

Cascara flowers are tiny greenish and borne in clusters at the end of branches. They flower briefly from mid spring to early June. They support a number of pollinators including some important butterflies and many bee family insects. The berries start out red and turn to a dark purplish to black. They are about pea sized and shape. They are gobbled by birds which spread their seeds. A number of insects make passing use of both the fruit and leaves while doing no real harm to the plant

Cascara trees need some sun and prefer full sun. They are often associated with dogwoods, vine maples (at the forest edge), and alders. They can handle both somewhat wet sites and are thus often found along



somewhat open streams. They will be found on drier sites if the soils are deep enough to bank. Cascara is found all over western Oregon, mostly at the lower elevations.

Cascara bark (and it turns out the wood as well) has a large concentration of compounds that are laxative. Native-Americans used the plant for this purpose and Spanish explorers also noted its value. It became a recognized commercial pharmaceutical product by mid 1800s. This led to a very large industry in harvesting bark from these trees. Unfortunately, the harvest was destructive and

the stripped tree died. The plant almost disappeared from its native range due to its value as bark.

In the 1940s, one person I knew had planted 20 acres of cascara in the coast range for future harvest. The end of World War II and the rise of other laxative compounds made this investment worthless. Cascara has some issues as a medicine. Bark has to be dried for a year or it causes violent vomiting. Pregnant women were not supposed to consume it and there are some concerns about it increasing colorectal cancer. It is no longer available as an over the counter product. Cascara honey, if you could ever find it, is good but slightly laxative. The berries are bitter and also laxative.

A real virtue is that beaver don't like this tree and will leave it alone. That makes it very useful for streamside restoration projects. I have some cascara that someday I plan to grind the bark, mix it with latex paint and apply that paint to beaver favored trees on a tough beaver site. Would it stop them? I don't know, yet.



# *That's the Way it Grows*

---

## **Reusing and Recycling**

I keep stuff for a long time. I try to squeeze the most useful life out of everything before I deem it no longer fit for service. My garden shed is evidence of that.

Case in point—my soaker hoses have been springing leaks for years. I know the whole point of soaker hoses is that they leak, but I mean leaks that spray or squirt water. I usually wrap leaks with electrical tape, which is very stretchy and works well for that application. After that fails, I repair the leak by cutting out a section and using a hose repair coupling.

I was just about ready to toss a soaker hose this spring with quite a few couplings and more leaks to fix, but I just had to try to use it. I cut it into lengths to lay along my garden rows, put threaded ends and caps on them, and plugged them into my watering manifold. They work great. Instead of having to wind the long hoses around plants, I just have nice short hoses the length of my rows. No more tripping over the hoses, which probably contributed to some of those leaks. And I get a few more years of service from those leaky hoses.

My favorite shovel finally gave up this summer—the one I always reach for first, the one that sharpens to a good edge. After years of levering out rocks and tree roots, digging holes for innumerable plants and moving literal tons of soil, gravel, sand and mulch, the handle broke on me. I'll be replacing it with another handle before spring. I'm actually still using it, dustpan style.

The heavy black plastic that I use each year to cover my vegetable garden failed me last year and needs replacing. I cover the garden in fall to keep the torrential Oregon winter rains off the soil. That way I can uncover the garden and plant sooner. This was not the case this year, as my garden soil was pretty wet when I removed the plastic. I decided not to duct tape all the holes up. It probably wouldn't have taken another folding and storing, and the duct tape would be expensive.

My rotating compost bin died—the one my son ran into with the lawn mower a few years ago. It used to be on a stand and had a crank to turn the barrel. Once it lost the battle with the lawn mower, I ditched the stand and just rolled the barrel along the ground. This summer the door broke, and compost would spill all over when I rolled it. It was time to say goodbye.

My good old compost bin sitting in the garden has lasted at least 20 years now. It was a Costco special, a heavy black “tuff” plastic square with a lid. I've only replaced a few of the nylon screws that hold it together. I can just pile up garden waste in it all season, then let it sit until the compost is done. I can turn the compost—and do, but not often—to speed it up. It does its job well, so I don't think I'll be replacing the barrel-style composter.

The little kit-built chicken coop is still standing, with several repairs and reinforcement, but I really want the girls to have more room when they can't be out foraging in the yard. So, we built them a new one, and will attach a larger run to it. This thing is built like a Mack truck and weighs a ton. We framed it like a house, complete with a window, and roofed it to match our house. It will be around for a very long time.

My garden shed is full of treasures. I have loads of nursery pot in all sizes and types that I save and use over and over. When my clay pots break, I keep chunks of them to place in the bottom of new pots to aid drainage and keep soil from washing out. I use large, reusable plant markers that I write on with a grease pencil, which doesn't fade, but can be wiped off to change. I also keep trimmings from my fruit trees to use as plant stakes.

I do tend to keep a whole lot of things in my shed, like 2-liter bottles and milk jugs, nylons, paper bags, old CDs and bits of string. If you are a die-hard gardener like me, you will know exactly what these items are useful for, and probably have them in your shed as well.

—Lisa M. Long

*Columbia County Master Gardener™*

Free gardening ebooks at:

[Smashwords.com/profile/view/LisaMarieLong](http://Smashwords.com/profile/view/LisaMarieLong)

# NOVEMBER

## Garden hints from your OSU Extension Agent

Oregon State University Extension Service encourages sustainable gardening practices. Always identify and monitor problems before acting. First consider cultural controls; then physical, biological, and chemical controls (which include insecticidal soaps, horticultural oils, botanical insecticides, organic and synthetic pesticides). Always consider the least toxic approach first.

All recommendations in this calendar are not necessarily applicable to all areas of Oregon. For more information, contact your local office of the OSU Extension Service.

### Planning

- Force spring bulbs for indoor blooms in December.

### Maintenance and Clean Up

- All of Oregon: Service lawn mower prior to winter.
- Check potatoes in storage and remove any going bad.
- Place a portable cold frame over rows of winter vegetables.
- Place mulch around berries for winter protection.
- Cover rhubarb and asparagus beds with composted manure and straw.
- Rake and compost leaves that are free of diseases and insects. Use mulches to prevent erosion and compaction from rain.
- Protect built-in sprinkler systems: Drain the system, insulate the valve mechanisms.
- Clean and oil lawnmower, other garden equipment and tools before storing for winter. Drain and store hoses carefully to avoid damage from freezing. Renew mulch around perennial flower beds after removing weeds.
- Protect tender evergreens from drying wind.
- Tie limbs of upright evergreens to prevent breakage by snow or ice.
- Trim chrysanthemums to 4 to 6 inches after they finish blooming.
- Leave ornamental grasses up in winter to provide winter texture in the landscape. Cut them back a few inches above the ground in early spring.
- Last chance to plant cover crops for soil building. You can also use a 3- to 4-inch layer of leaves, spread over the garden plot, to eliminate winter weeds, suppress early spring weeds and prevent soil compaction by rain.
- Watch for wet soil and drainage problems in yard during heavy rains. Tiling, ditching, and French drains are possible solutions. Consider rain gardens and bioswales as a long term solution.
- Take cuttings of rhododendrons and camellias for propagation; propagate begonias from leaf cutting
- Prune roses to "knee-high" to prevent winter wind damage.

### Planting/Propagation

- Plant window garden of lettuce, chives, parsley.
- Good time to plant trees and shrubs. Consider planting shrubs and trees that supply food and shelter to birds; e.g., sumac, elderberry, flowering currant, and mock orange.
- Still time to plant spring-flowering bulbs, such as tulips, daffodils, hyacinths, crocuses. Don't delay.
- Good time to plant garlic for harvest next summer, and to transplant landscape trees and shrubs.

### Pest Monitoring and Management

- Monitor landscape plants for problems. Don't treat unless a problem is identified.
- Rake and destroy leaves from fruit trees that were diseased this year. Remove and discard mummified fruit.
- Check firewood for insect infestations. Burn affected wood first and don't store inside.
- Treat peaches 4 weeks after leaf fall spray for peach leaf curl and shothole diseases.
- Moss appearing in lawn may mean too much shade or poor drainage. Correct site conditions if moss is bothersome.
- Bait garden, flower beds for slugs during rainy periods. Use traps or new phosphate baits, which are pet-safe.

### Houseplants and Indoor Gardening

- Reduce fertilizer applications to houseplants.



## Farm and livestock notes

### Cattle market crumbles

If you follow livestock auction prices or have purchased beef in the supermarket, you know the cattle market for is way down. Two years ago, weaned 600 pound calves fetched \$1,300 or more, now \$650 is the norm. To understand what happened, we have to go back to the drought of 2011 that hit the Midwest and the plains states including Texas very hard. Grass feed was non-existent. Grain and alfalfa crops were hammered by the drought as well, leading to reduced supplies and higher prices.

With poor forage and high grain prices, ranchers sold their cows down to a level that they could afford to feed. This massive sell-off pushed cow inventory down to 1950 levels. Then the drought ended, grass returned and corn crops flourished. Feed prices dropped but there weren't many calves to feed. So calf prices climbed to the stratospheric levels noted above.

Since it takes about three years from breeding a cow to the breeding and calving of her heifer, it takes time to rebuild a cow herd. So high calf prices persisted for about three more years. Eventually, decisions by ranchers all across the country to increase cow herds led to the glut of calves we have today. Current low grain costs encourages feedlots to carry them to higher weights, increasing beef for market.

One analyst noted that many young ranchers have never been through a major herd rebuilding cycle (the last one was in 1990) and perhaps the calf high prices of several years ago made them more optimistic than



they should have been and they held on to more heifers than they should have. There could be some significant financial stress on those operations if borrowed money was used to rebuild (despite the current low borrowing rates). The projection is that calf prices will remain somewhat low through 2017 and slowly rebuild from there.

### Know your cow's BCS

The Body Condition Score (BCS) system was developed to help assess your cows' nutritional status going into the difficult winter feeding period. It is a visual and hand assessment of the amount of fat cover over the ribs, the backbone, and the hips. With some hands-on practice, you will get quite

good at this. Here is a publication with some decent pictures and a description of what you are assessing: <https://pubs.ext.vt.edu/400/400-795/400-795.html>. So why do this? If your cows are coming into winter with a BCS of 4 or lower, they are already in trouble and the mud, rain, and

cold will challenge them further. At this stage, you have to come up with a feeding program that increases their body score. It must meet all their needs for protein and minerals and exceed their need for energy to put on more weight and fat cover.

Fortunately, feed costs are lower right now. Good alfalfa combined with local hay and perhaps small amounts of gain could be just the ticket to pull them through this winter. But the program need to start soon since the cow is bred and carrying a calf. That only increases the feed quality needs and amounts going forward.

### Complex pastures

There is increasing interest in pastures with a greater mix of grasses and broadleaf plants. Most of the research has been done on the east coast, where they get summer

rainfall. Often, they included alfalfa along with other broadleaves and grasses. But their soils often have a lot of native calcium in them so they didn't need liming to support the alfalfa. Here, lime is very expensive to get delivered and applied so alfalfa would be a marginal choice. If you were summer irrigating your pasture, their results would fit here. Even so, there are some dairies and a few beef or sheep operations that feel it works well here, even without irrigation. Pastures were planted with several grasses, usually orchard and endophyte free tall fescue in combination with lotus (aka trefoil), some clovers, chicory, and sometimes, plantain. These mixes can be harder to find and may take some effort to put together. But they might be worth a try on a small piece where you can easily control the rotation to see how the pasture species and livestock perform.

## Water is life

We can't imagine life without water. It is unique compound that is foundational for the most basic processes of all life we know. We go into space seeking signs of water that might support life.

Agriculture began where water was plentiful and reasonable predictable some 12-14,000 years ago. Civilizations were initially organized around water collection and distribution. In the United States, the federal government assisted in the development of water projects to bring water to areas that had good climate and soils but no predictable water. Some good examples include the San Joaquin valley canals in California and the large irrigation projects in

eastern Washington and Oregon. Both these projects were based on snow accumulation in the adjacent mountains and the capture behind dams of this water for later release and power generation. It was thought to be renewable and it largely has been, but research does show that years of poor snow accumulation were not unknown in prehistoric times. Climate change is predicted to increase the number of poor snow years.

Farmers that irrigate from drilled wells located some distance from major rivers are often using water from aquifers that may have been there for a very long time. The *Oregonian* recently published some excellent articles about the challenges facing farming in areas where the aquifers are not recharging as fast as they are being pumped. Pumping more than recharge is wrong and very short-sighted. Not only will it affect future farmers but it can affect water for streams and the fish and other life in them but also drinking water for towns, and cities. You should read those articles if you haven't

already. It isn't the fault of farmers but a problem with regulators that were willing to err on the side of aquifer depletion versus the viability of farming in the long term.

This is being played out on a much larger scale in the Great Plains where significant parts of the Ogallala aquifer is being

pumped well past its ability to recharge (see *Irrigation Nation* article at <https://psmag.com/irrigation-nation-3c386fb567f6#.ngrh8nns6> ). These farming areas have installed center pivot irrigation systems tied to deep wells in areas that get less than 10 inches a year of natural rainfall. There are estimates that it may take



thousands of years to rebuild parts of the aquifer if all pumping were stopped today. The irony is that much of the area is growing corn, a crop that is very water dependent and whose value is supported the legal requirement for a biofuel component (ethanol) to gasoline. Without that requirement, there would be far less corn grown. It is also, same story, a failure of regulation to protect the future for the sake of present.

Modern plant breeding is hoping to generate crop varieties that are equally productive with less water. New technologies are being developed to irrigate more efficiently with no loss in yield. These fixes are important for agriculture of the future and so is the need to not impoverish the future by ignoring clear problems like ground water depletion and climate change.

### **Veterinary Feed Directive (VFD)**

This was something I didn't pay a lot of attention to until recently. The VFD rule by the Food and Drug Administration is an effort to reduce the use of human health antibiotics in routine poultry and livestock feeding. There is much scientific evidence that excessive use of antibiotics in livestock feeding hastens bacterial resistance to the products and makes them medically useless for human health. The most farm common use of medicated feeds and soluble antibiotic powders to be mixed in water were for hog, poultry, and young calves. The VFD does not affect the use of injectable antibiotics to treat individual animals.

Going forward, you will need to develop a good relationship with your veterinarians (which has always been important anyway). They are the only ones that can write a prescription for these "fed antibiotics". The FDA is very clear that "rate of gain" is not an acceptable reason for

medicated feeds (common for hogs and poultry). You will have to review with them how you manage your operation and how to approach medical issues that may require medically significant antibiotic used. Your records and the vet's records will have to be detailed as to treatments authorized, which animals were treated, and what were the outcomes.

This is an opportunity to increase your disease prevention programs, starting with timely vaccinations, a good nutritional program, and clean, comfortable facilities. Anything you can do to lower your animals stress will reduce the need for antibiotic interventions. Some products, like those for coccidiosis ( a common winter problem) are not affected by the VFD rule. Neither are the worming drugs or those for external parasites like lice.

For more information, see

<https://catalog.extension.oregonstate.edu/site/s/catalog/files/project/pdf/em9151.pdf> or type "Veterinary Feed Directive + Oregon State University" into your browser. For pork producers, see [http://extension.oregonstate.edu/polk/sites/default/files/documents/veterinary\\_feed\\_directive\\_dr\\_pyburn\\_presentation.pdf](http://extension.oregonstate.edu/polk/sites/default/files/documents/veterinary_feed_directive_dr_pyburn_presentation.pdf)



### **New publication: *How to Feed Your Laying Hens***

OSU poultry specialist Dr. Jim Hermes has revised his publication on feeding laying hens. There is new material about pasture feeding, organic options, and how to pick the right feed mix for the age and productivity of the hens. It is a very useful publication and is available free, online at :

<https://catalog.extension.oregonstate.edu/site/s/catalog/files/project/pdf/pnw477.pdf> .



## 2017 OSU Master Gardener™ class will be held in Vernonia

The Columbia County/OSU Master Gardener™ training will be held in Vernonia on ten consecutive Tuesdays from about 9:30 am to 3:30 pm starting on **February 21, 2017**.

Do you want to learn more about plants, growing things and gardening? Are you eager to participate in a practical and intensive training program? Do you look forward to sharing your knowledge with people in your area? Do you have time to attend training and to complete volunteer work? If you have answered yes to these questions, check out the Oregon Master Gardener program! **THE CLASS WILL FILL UP FAST - HURRY!**



Registration will be [online](#) this year and the class will be limited to 20 trainees. If you don't have access to a computer or need help registering, please contact the OSU Extension Office in St. Helens at 503 397-3462 or email either Chip Bubl ([chip.bubl@oregonstate.edu](mailto:chip.bubl@oregonstate.edu)) or Vicki Krenz at ([vicki.krenz@oregonstate.edu](mailto:vicki.krenz@oregonstate.edu)). **Please enroll ASAP!**

Cost of the class is \$80; there are a few scholarships available.

Oregon State University Extension Service offers educational programs, activities, and materials without discrimination based on age, color, disability, gender identity or expression, genetic information, marital status, national origin, race, religion, sex, sexual orientation, or veteran's status. Oregon State University Extension Service is an Equal Opportunity Employer. OSU Extension programs will provide reasonable accommodation to persons with physical or mental disabilities. Contact the Columbia County Extension office at 503.397.3462 to request reasonable accommodation. This publication will be made available in accessible formats upon request. Please call for information.

Presorted Non Profit  
Bulk Rate  
U.S. Postage  
PAID  
St. Helens, OR  
Permit #002

Oregon State University  
Columbia County OSU Extension Service  
505 N. Columbia River Highway  
St. Helens, OR 97051  
Return Service Requested