



Country Living

Provided to you by the
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January 2015

Programs for you . . .

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

- Jan. 6 Scappoose Bay Watershed Council. 7 p.m., Scappoose Bay Watershed Council's office, Warren
- Jan. 8 Vegetable Transplants Master Gardener Mtg. 3:15 p.m., OSU Extension Classroom, St. Helens
- Jan. 8 Master Gardener™ Board Meeting. 3:45 p.m., OSU Extension Classroom, St. Helens
- Jan. 13 Lower Columbia Watershed Council. 7 p.m., SWCD office-35285 Millard Rd., St. Helens
- Jan. 21 Soil & Water Conservation District. 7:30 p.m., SWCD office-35285 Millard Rd., St. Helens
- Jan. 21 Growing Farms Workshop Series. North Willamette Research & Extension Center, Aurora OR
Feb. 4, 21 & Mar. 4 See back page for information.
- Jan. 22 Master Gardener™ Chapter Meeting. 6:30 p.m. Speaker will be Lynn Cox, "Seed to Supper," OSU Extension Classroom, St. Helens. Lynn is a Multnomah County Master Gardener and teaches Oregon Food Bank's Seed to Supper course; a gardening program designed to empower adults to grow a portion of their own food on a limited budget. **The public is invited. Free.**
- Jan. 22 Upper Nehalem Watershed Council. 7 p.m., Vernonia Grange, <http://nehalem.org/> 503-429-0869
- Feb. 7 Oregon Pork Producers Annual Meeting & Educational Workshops. 8 am to 4 pm, Corvallis OR. \$30 for adults, \$5 for youth. Pre-registration is requested, contact Matt Kennedy at 541-737-1906 or matthew.kennedy@oregonstate.edu



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

Watering blueberry bushes

Blueberry plants are more sensitive to moisture stress than many gardeners think. The demand for moisture is highest in July and August when two processes are going on in parallel. First, the blueberry fruit is in its



most rapid stage of growth. Second, and equally important in the long term, the flower buds for next year's crop are forming at the same time.

Floral initiation also continues after the fruit has been picked.

Typical peak moisture use for a 6+ year old plant in July and August will be 1.75 – 2.25 inches of water per week. If little watering has been done up to July (and if not much rain has fallen since early June), the plants will need careful monitoring as to their moisture needs. Since the leathery leaves of blueberries tend to resist wilting, the signs of moisture stress can be very subtle. So take a small shovel, a hand trowel, or a soil moisture probe and actually check to see how much moisture is in the bulk of the rooting zone (~ the top 12").

Blueberry roots are quite shallow, rarely extending below 18 inches. If you have been putting on quite a bit of sawdust or other woody surface mulch (which blueberry plants like), a large percentage of the roots may grow into the mulch layer. These roots can dry out more quickly if moisture is short and temperatures (and plant demand) are high.

Blueberries can be irrigated with drip systems. Many commercial operations are now using paired drip lines on each side of the row. This insures that the bulk of the root system will get wet if the system is run long

enough. As noted above, you should check to see how well distributed the moisture is.

Small sprinklers that are moved from bush to bush can deliver pretty uniform coverage but take a bit more effort to move back and forth.

Winter planning for home orchard pests and disease

Face next season's fruit tree disease and pest problems by making a preventive strategy now.

Since late winter is a good time to plant bareroot trees, the first line of defense is to choose a resistant variety. Otherwise, look to sanitation and low-toxicity sprays such as dormant oil and copper to keep trees healthy.

First up, be vigilant about removing dropped fruit and leaves that might be harboring pests. Follow that with appropriate sprays to get at those pesky insects, fungi and bacteria that like to make a home in cracks and crevices, said Ross Penhallegon, horticulturist with the Oregon State University Extension Service. Spraying in late fall to early spring is more effective than waiting until the weather warms up and pests become active.

Below are Penhallegon's recommendations for the least toxic sprays and treatments for fruit trees. These products are usually available at garden centers. Always follow label directions. For more information, contact your local Extension office in Columbia County at 503 397-3462.

Dormant Oil: Mix with water as directed and spray on all surfaces of the trunk, branches and twigs. The best time to control mites, aphids and scale is early to mid-March, just before the tree begins to emerge from dormancy. Apply when the temperature is expected to rise during the day; temperatures below 35 degrees can damage the bark. Dormant oil controls aphids, scale, spider mites and many other insects by desiccating or smothering eggs and larvae.

Lime-Sulfur: Spray to control fungal and bacterial diseases such as peach leaf curl, pseudomonas and scab. It's very important not to apply sulfur sprays to apricots.

Fixed Copper: Spray on apples, pears, cherries, peaches and plums to control canker. Allow two weeks between applications of copper and any sprays containing sulfur. Add a spreader-sticker product to help copper adhere to the tree surface.



Latex paint: Coat the trunks of young trees with white exterior latex paint mixed half-and-half with water. The paint reflects strong sunlight and prevents sunburn and winter burn that can cause tissue damage and lead to cracks, a favorite place for pests to overwinter and cause substantial winter damage.

Here are some tips for specific fruit trees:

Apples: Spray copper as the leaves are falling; dormant oil once or twice from February through March; copper in January or February, then just before buds open, and wettable sulfur just after petal fall.

Apricots: Spray copper before the fall rains; dormant oil in February.

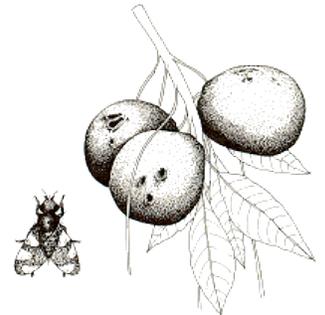
Cherries: Wettable sulfur or lime-sulfur applied weekly during blooming for brown rot.

Pears: Spray copper before the fall rains. Apply lime-sulfur two to three times between early December and March beginning in fall, again during winter, and finally just before buds open in March. Use dormant oil in early spring before buds open and wettable sulfur just after petal fall.

Peaches: Spray copper or a good dormant fungicide three to four times between December and bud break, usually once a month starting December 15 and ending March 15. Spray fungicides during break in fall rains and in early spring just before bud break. *From Kym Pokorny and Ross Pennhallegon*

Walnut husk fly

I had a lot of calls this year about blackened, slimy husks on walnuts. The culprit is a fly, called the walnut husk fly, which emerges from overwintering larval pupae in late July. Females mate and then look for walnuts to lay their eggs in. The eggs hatch into small white maggots that feed on the husk.



As the maggots eat, the husk damage grows and so do the maggots. Eventually, the maggots fall off the tree, sometimes with the nut, sometimes before the nut falls. The maggots burrow two inches into the soil, pupate, and the pupae stay in dreamland until next July.

Control is awkward. Walnuts are usually big trees. It is not easy for homeowners to spray for the flies in early August. Alternative solutions are as follows:

Till the soil under and around walnuts to a shallow depth of 2-3 inches in the early fall.

Put tarps under the walnut trees to keep the maggots from finding "pay dirt".

Treat the soil with beneficial nematodes in late September and irrigate enough to keep the soil moist for the nematodes.

Collect all husks and dispose of them away from your property.



That's the Way it Grows

Pruning

My garden is covered for the winter, the perennial beds are cleaned up and the wind has raked the leaves up for me. It pretty much looks like winter. Which means I am curled up with a blanket and my laptop, thinking about spring. Actually, I'm thinking about how to keep from going outside in the rain and cold to do work until spring. I am truly a wimp about cold, wet weather. It's a bit embarrassing for a native Oregonian.

But there is work to be done during the winter. I have a dozen fruit trees that each requires pruning. Why prune trees? For many reasons:

Increase sunlight and airflow—a dense canopy can encourage fungus. You also want to give your pollinators easy access.

Maintain tree health—trimming branches that rub keeps a wound from developing. We prune off damaged or infected branches and limbs in late winter, because it does the least damage to the tree at that time.

Increase fruit production—pruning away suckers and heading limbs directs the tree's energy into fruit production instead of growth.

Control tree size and shape—even dwarf trees can get branching and leggy. My semi-dwarf trees get huge if I skip a year's pruning.

Ease of harvest—I have to climb up into my peach tree because the fruit are pretty delicate and must be hand-picked. I think this tree hates me, because it's always poking me in the eye or jabbing me in the face. So I trim a few branches to open up the middle of the tree.

There is also the matter of being able to mow around your trees. Sometimes, you just have to cut a branch because it keeps poking you in the eye.

My husband always tells me I prune off too much when he sees the piles of trimmings on the lawn. It is true that over-pruning in the winter can actually encourage the growth of suckers. Hard-pruning stimulates bud growth. It's actually a technique used to revitalize trees.

I reduce sucker growth two ways: I prune many suckers in the summer. Summer



pruning a bit here and there is perfectly fine. Secondly, when I head back branches in the winter, I rub off the buds along the top of the branch with my glove. Upwards-growing buds will produce suckers, so I get rid of many as I prune.

For me, I find trimming and pruning to be an ever-changing process. My trees are never the same each

year, and I have made a few pruning mistakes over the years that I still deal with to this day. I have read and studied and experimented, but what I really like to do is look at well-maintained older orchards and try to emulate them. Since all the leaves are gone, now is the time to get out and study them.

Unfortunately, that means going out in the wet and cold. But that makes the fruit all the sweeter in the summer.

—*Lisa M. Long*
Columbia County Master
Gardener™

[Smashwords.com/profile/view/LisaMarieLong](https://www.smashwords.com/profile/view/LisaMarieLong)

JANUARY

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

- Keep a garden journal. Consult your journal in the winter, so that you can better plan for the growing season.
- Check with local retail garden or nursery stores for seeds and seed catalogs, and begin planning this year's vegetable garden.
- Have soil test performed on garden plot to determine nutrient needs. Contact your local Extension office: extension.oregonstate.edu/find-us or for a list of laboratories view EM 8677 online: <http://bit.ly/ngufWK>.
- Take hardwood cuttings of deciduous ornamental shrubs and trees for propagation.
- Plan to replace varieties of ornamental plants that are susceptible to disease with resistant cultivars in February.

Maintenance and Clean Up

- Clean pruners and other small garden tools with rubbing alcohol.
- Reapply or redistribute mulches that have blown or washed away during winter.
- Place windbreaks to protect sensitive landscape evergreens against cold, drying winds.
- Do not walk on lawns until frost has melted.
- Water landscape plants underneath wide eaves and in other sites shielded from rain.

Pest Monitoring and Management

- Monitor landscape plants for problems. Don't treat unless a problem is identified.
- Scout cherry trees for signs and symptoms of bacterial canker. Remove infected branches with a clean pruner or saw. Sterilize tools before each new cut. Burn or send to landfill before bloom. See EC 631, Controlling Diseases and Insects in Home Orchards.
- Watch for field mice damage on lower trunks of trees and shrubs. Eliminate hiding places by removing weeds. Use traps and approved baits as necessary.
- Use dormant sprays of lime sulfur or copper fungicide on roses for general disease control, or, plan to replace susceptible varieties with resistant cultivars in February.
- Moss in lawn may mean too much shade or poor drainage. Modify site conditions if moss is bothersome.
- Spray peach trees with approved fungicides to combat peach leaf curl and shothole. Or plant curl-resistant cultivars such as Frost, Q1-8 or Creswell.

Houseplants and Indoor Gardening

- Monitor houseplants for correct water and fertilizer; guard against insect infestations; clean dust from leaves.
- Protect sensitive plants such as weeping figs from cold drafts in the house.
- Propagate split-leaf philodendrons and other leggy indoor plants by air-layering or vegetative cuttings.
- Plant dwarf annual flowers inside for houseplants: coleus, impatiens, seedling geraniums.
- Gather branches of quince, forsythia, and flowering cherries; bring indoors to force early bloom.





The Grapevine
 News for Columbia County Master Gardeners™
www.columbiacountymastergardeners.org
January 2015



Deadline for THE GRAPEVINE - All materials will need to be into the OSU Extension office no later than the 20th of each month.

Volunteer Payback

2014 Payback hours are due by January 14th

LOG YOUR HOURS, and turn them into Extension office. Hours worked by veteran as well as new Master Gardeners accumulate to justify continuance of our program through OSU.

To get a form off the web:

<http://extension.oregonstate.edu/columbia/master-gardener-volunteer-program> choose Master Gardener™ Volunteer Log Sheet – word document.

President's Corner

This is my first message to the members. I hope to do as well as those who have preceded me.

The holidays are behind us, hopefully you had wonderful visits with your families and friends and enjoyed the holiday meals. I certainly passed some time in my favorite spot; the dinner table.

Our recent late November-early December cold snap likely does not bode well for some plants. A sudden cold snap does not give our green friends a chance to adapt to cooler weather or us a chance to properly protect some that we know are more sensitive. Hopefully there will not be too much damage.

As for gardening this is like the time our interest is rekindled toward the next garden season. A good way to do this (as if any of you need these reminders) is scanning seed catalogs and reviewing what seeds you have on hand. If you find some old seeds, before you toss them you might like to give them a fertility test. Place a number of seeds in a pot in the window, water and wait. If you have at least 50% fertility, just plant twice as many as you normally would.

If you have excess seeds the St. Helens and Scappoose Community gardens may be able to use them or you could just share them with other gardeners by bringing them to our monthly meetings.



Calendar: At-A-Glance

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| Jan. 8... | Master Gardener Vegetable Starts, 3:15 p.m., Extension office |
| Jan. 8... | Board Meeting, 3:45 p.m. Extension office |
| Jan. 22. | Chapter Meeting, 6:30 p.m., Speaker: Lynn Cox, OSU Extension Classroom, St. Helens |

Thanks to outgoing board members *Dennis Snyder*, President; *Leroy Schmidt*, Past President; *Susan Snyder*, Secretary (returning for 2015); *Gail Martyn*, Treasurer; *Kit Gardes*, Historian; *Kathy Johnson*, OMGA Rep; *Larry Byrum*, and Alt OMGA REP; *Kathy Johnson*. Our committee chairs *Linda Bainbridge*, *Kit and Chip Gardes*, Demo Garden Coordinators; *Kathy Johnson*, Spring Fair Coordinator; and Web Master, *Larry Byrum*. We also could not manage without guidance from *Chip Bubl*, Extension Agent and *Vicki Krenz*, Extension Secretary.

I am looking forward to working with the new board and all our members to have another successful year in our recurring endeavors and whatever new ones we decide to take on. I extend my good gardening wishes and hope we can have a year like we did last year. In closing I offer this quote.

"There is a tale...It tells of the days when a blight hung over our land. Nothing prospered. Nothing flourished. Not even zucchini would grow." — *Cameron Dokey, Golden*
 --Wes Bevans

An Idea to Consider

Would you be interested in helping with a project to create vegetable starts, patio tomatoes, or mini gardens to donate through the Food Bank? The Food Bank is interested in the idea and said they have had good response to donations of starts in the past. We promised to come up with a list of possible starts and a schedule when they could expect them. It would also be nice if we could include growing tips with each plant. Give it some consideration before our next Planning Meeting on January 8 and Chapter Meeting on January 22.

- *Chuck Petersen and Debi Brimacombe*

Birds of a Feather— (Really?) The Turkey Vulture

By Sarah Karr, Polk County Master Woodland Manager

Pity the vulture, historically misunderstood and maligned by so many, but one of the most interesting birds you may, literally, stumble across in your woodlands. It wasn't all that long ago that my very own husband was making his way up a shrubby slope in our forest and disturbed a turkey vulture (TV) chick hopping about near a nest at the base of an old broken-off maple tree. I don't know who was more surprised.

We are all used to seeing vultures v-shaped and teetering in the sky or hanging out with their buddies near road-kill, but until recently I have given them relatively little thought. Out with other birdwatchers,

someone might spot a large bird in the sky, look for a few moments, and then announce, "Oh, it's only a turkey vulture." But, wait. Only a turkey vulture?

Turkey vultures, the only vultures we are likely to see in the Northwest, are social birds. A group of them can be referred to as a "committee," a "venue," or a "volt." Flying in a group, they are known as a "kettle" of vultures. Alongside the road, feeding on a carcass, call them a "wake" of vultures. And whether a venue, a kettle, or a wake of Turkey Vultures, these eagle-sized birds deserve our thanks.

They literally clean up tons of dead and decaying meat that might otherwise be left lying in our farmyards, backyards, woodlots and roadsides until, well, who knows. They are drawn to dead critters by their powerful sense of smell; they can smell the odor of a

dead animal from a mile above the source. They can smell a carcass even through a closed canopy forest. TVs also use sight to help locate a meal, but they are unusual in the bird world for their amazing sense of smell.

At one time, it was believed that vultures were carriers of disease or that they would kill live, healthy animals. This is not true. They eat carrion, or dead animals, mostly mammals, but also animals as small as crickets and mayflies. By quickly disposing of large quantities of meat that would otherwise rot, they get rid of potential disease sources that could have gone on to

infect other animals. The strong acid in their intestinal tracts destroys most pathogens. And it doesn't make the TV sick to ingest and wade through these germs; in fact, their acidic poop runs down their legs and feet, effectively disinfecting

them. Far from being a disease vector, turkey vultures are the supreme cleaner-uppers of our landscapes.

Turkey vultures are monogamous and long-lived. They are also migratory, spending winters in Central and South America. At our forest in the Willamette Valley, we typically see TVs returning in early March. Although they typically roost in large groups, TVs nest in wooded, isolated areas. Large, low tree cavities and brush piles are preferred, so think about leaving large hollow trees where you find them in your woods. Next spring you may just come across a couple of chicks yourself. If you do, give them some space for a few weeks till they fledge, and the next time you see a kettle of vultures, you can wonder if one or two of them might be "yours."



Farm and livestock notes

Tray cell size for early transplanting

Early vegetable crops often start out as greenhouse grown transplants. The greenhouse environment allows the grower to take advantage of the sunlight of longer days even when outside temperatures are still cold. One grower described it as getting Georgia in Oregon in March. There has been a tendency to use plug trays that have more cells and thus grow more transplants per square foot. This can optimize greenhouse bench space but there is a price paid in the ultimate size of the transplant and its root system. Research on cell size indicates:



- As cell size decreases, so does the root system



- volume and the pattern of root growth. This is less important for some crops like transplanted onions. Good irrigation management can mitigate some of these effects.
- Crops that will be held for longer periods of time need trays with fewer cells per square foot for both better light penetration (less crowding between plants) and bigger root growth. Black plastic trays may grow better roots in cool greenhouses because they absorb more heat.
- Transplants from smaller cell sizes have to be put out on schedule or their quality can deteriorate more rapidly than larger plug sizes prior to transplanting.

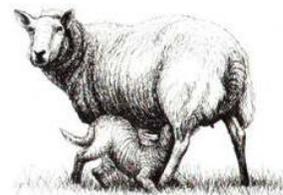
- Tomatoes, cucumbers, and squash are often grown in trays with 50 or fewer cells per tray. Peppers seem to do well at 72 per tray as do early cabbage family crops. Later cabbage family crops can be grown in 128s and onions are generally grown in very small plug sizes of 200 or more per tray.

Good post-transplanting management of irrigation and the use of row covers and/or plastic heat retentive mulches will get the plants off to a good start.

Soggy winter pastures

This is no time to be grazing pastures. Most parts of Columbia County have gotten rain that exceeds 40 year October –December averages by 20-50%. Saturated soils and heavy hoof traffic lead inevitably to a muddy morass that, by spring, will be mostly empty of grass and will only support the most vigorous weed species. Horses and cattle are the hardest on saturated ground. Sheep and goats tread more lightly and can generally be managed in ways that maintain the grass that will be your spring feed.

As you look to spring, consider a fertilizer application in late February of about 40 pounds of actual nitrogen per acre (roughly 90 pounds of urea) to give the pasture an early boost. This won't work if it has been grazed hard all winter but if the grass is 3-4 inches tall, it should respond to the N in both a higher yield of early grass and a better nutrient profile.

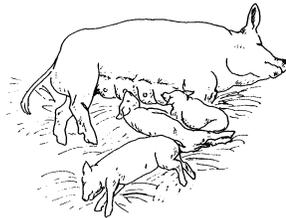


This is also the time to plan your weed control program. Think about the weeds that are causing the most problems, make a rough map of their populations, and develop a control plan. Thoughtful grazing and fertilizing to maintain grass vigor is the first defense. But careful use of herbicides can make a big difference in how much of the

pasture the animals will consume. For example, there can be a lot of grass growing within Canada thistle patches that won't be eaten. No animal wants a muzzle poked by stickers. As Canada thistle emerges from its winter slumber, consider spot spraying with a pasture-labeled herbicide that will control it. Call me if you have questions about timing or product. The same goes for controlling the rosettes of tansy ragwort that, if left unchecked, will bloom in July.

Heat lamps in the barn

Heat lamps are important farm tools for warming young poultry and chilled new lambs, piglets, and calves. But they have been the cause of numerous barn fires. Often, heat lamps are knocked into dry bedding where fires quickly ignite. Barn animals, rats, raccoons, and even coyotes have been implicated in the fires. Often the lamp placement was less secure or tight than it should have been.



Heat lamps can be set too close to the bedding itself and directly heat the bedding to ignition.

But a third source of fire is the very quality of the fixtures, wiring, and bulbs. Many of the readily available heat lamp fixtures and bulbs from hardware stores or even farm stores are not as safe as you would want. Look for quality in the gauge of electrical wire used, the safety record of the fixture as best as you can ascertain it, how well it can be attached and hung, and the thickness of the bulb glass to reduce the shatter potential.

Other possible heat lamp safety improvements might be to:

- Let hens incubate eggs and chicks. Use heat mats for piglets and lambs. Move calving and lambing seasons to April. Skip heat lamps altogether.

- Upgrade breaker panels – talk to an electrician
- Isolate heated spaces from the main barn to reduce fire issues.

This material is summarized from an excellent piece written by Michael Glos in the Cornell Small Farms Quarterly. Read the whole article. It can be found at <http://smallfarms.cornell.edu/2014/04/07/managing-risk-using-heat-lamps-on-the-farm/>

Avian influenza found in Oregon

Highly pathogenic H5 avian influenza has been found in domestic birds in Douglas County. The Oregon Department of Agriculture is the lead state agency responding to the incident. **There is no immediate public health concern** due to the avian influenza virus detected in Oregon. H5N8 virus has been found in other parts of the world and has not caused any human infection to date. Avian influenza does not affect poultry meat or egg products, which remain safe to eat. As always, both wild and domestic poultry should be properly cooked.

The H5N8 avian influenza virus was confirmed by USDA in guinea fowl and chickens from a small backyard poultry flock in Winston, Oregon. The flock of approximately 100 birds has access to the outdoors. A pond and a marsh on the premises are frequented by migratory birds. The virus has not been found in commercial poultry anywhere in the US. Surveillance for avian influenza is ongoing in commercial poultry operations, live bird markets, and in migratory wild bird populations.

The finding in Oregon was quickly reported and identified due to increased awareness of avian influenza in light of the high path avian influenza findings in wild birds in Washington earlier this week. This H5N8 virus is the same virus that was found in a Washington captive gyrfalcon. ODA is advising commercial poultry growers and

backyard flock owners to be vigilant with biosecurity measures and surveillance.

“Steps are being taken to contain the disease and we have not diagnosed avian influenza elsewhere in Oregon’s domestic poultry population, but the presence of the virus in migratory waterfowl poses a potential risk to our backyard poultry,” says ODA’s State Veterinarian Dr. Brad LeaMaster. “This event underscores the importance of biosecurity for backyard bird owners. We strongly encourage owners to take biosecurity measures to reduce the risk of spreading the disease. That includes preventing contact between their birds and wild birds. We also want them to monitor their flock closely and report sick birds.”



Backyard flock owners can report sick birds to the State Veterinarian’s office at 1-800-347-7028 or can call USDA toll free at 1-866-536-7593.

Oregon’s commercial poultry industry has a robust avian influenza testing program and ODA conducts weekly surveillance testing and health inspections at the state’s only live bird market in Woodburn. In addition, wild bird mortality surveillance is routinely conducted by the Oregon Department of Fish and Wildlife. Wild bird deaths can be reported to the ODFW toll-free line at 1-866-968-2600.

Symptoms of avian flu on poultry:

Symptoms of a low pathogenic form of avian flu virus in poultry can include ruffled feathers, lower feed consumption, and a drop in egg production, or there may be no symptoms at all. By contrast, the highly pathogenic virus strains cause severe illness

and often kills the bird within 48 hours and the first sign may be dead birds. More than 90% of birds in a flock may die from infection with highly pathogenic avian flu viruses.

Avian influenza biosecurity for small farms: Key concepts

Avian influenza is potentially pathogenic to most birds, wild and domestic. Some strains can infect humans, others do not.

In general, biosecurity in a poultry operation depends on isolating the birds.

Several key elements must be in place for a disease such as bird flu to develop and spread:

- a susceptible host (e.g., a bird)
- environmental stress (e.g., poor conditions weaken birds' immune system)
- reservoir for the disease (e.g., an infected duck, wild bird, etc.)
- infectious agent (e.g., an avian influenza virus)
- vector, or means for transmission (e.g., virus in bird feces carried from farm to farm by birds and/or people)

Environmental conditions that can predispose to disease (directly or facilitated by poor immune response) include temperature extremes, dust, poor sanitation, poor nutrition, and crowding.

The objective of biosecurity practices is to prevent anything that can carry a disease-causing organism from coming in contact with the birds. The most likely vector, or means of transmission, for bird flu is manure from infected birds or the introduction of infected birds into a flock.

Protective measures for several possible means of disease transmission:

People are a likely source of infection. Poultry producers should avoid birds other than their own. They should change clothes or wear farm coveralls when working

around birds. Change boots when entering and leaving the farm. Use disinfectant footbaths and change disinfectant daily. Screen visitors for recent poultry contact.

Vehicle traffic from farm to farm should be avoided. Vehicles that must travel between farms should be power washed and then disinfected. A disinfectant bath may be ineffective if the vehicle is not clean or the disinfectant is not changed at least daily. If the disinfectant looks dirty, it is probably ineffective.

Wild birds must be kept from farms as much as possible by perimeter and overhead fences and coverings over house openings.

Proper environment

Good nutrition, potable water and proper housing should be available for poultry at all times. Poor environmental conditions predispose birds to disease. Proper sanitation begins by maintaining a clean facility. Diseases tend to recur when the cycle of disease is not broken. Birds are the best reservoir and should thus be depopulated periodically to break the disease cycle.

Proper cleanup on the farm

Basic biosecurity indicates that periodic depopulation and cleanup on the farm should occur. Remove all organic matter before wash down and disinfection. Manure from infected houses should be buried, composted or burned. Allow a two-week interval between flocks to break the disease cycle. Commercial disinfectants or dilute bleach solutions can be used for cleanup of equipment and inside buildings. Always



follow directions and use proper protective equipment with these chemicals. Dry, sunny conditions will help to disinfect yards. Tilling of the yard may help bring disease organisms to the surface to be killed by sunlight. In the event of a bird flu outbreak in your area, authorities will determine proper control procedures.

Frequently asked questions

What is the most important part of biosecurity for small-scale poultry producers?

Maintaining attention to detail and a proper attitude toward the need for biosecurity is essential for all poultry producers. Biosecurity is simple if one has the right mindset to analyze the risks of carrying the disease and the means to avoid those risks. Determining appropriate procedures and then following them will greatly reduce the risk of spreading any disease.

Are any disinfectants effective in the presence of organic matter such as manure?

Most commonly used disinfectants do not work well in the presence of organic matter. Most disinfectants work only on a relatively clean surface. Boots, for instance, should be thoroughly cleaned before disinfection. Yards where poultry are kept can be allowed time to dry so that sunlight can act as a disinfectant. Only harsh chemicals can disinfect dirt or manure, and these should be used with extreme caution by qualified individuals.

Edited from a publication from Jeffre Firman, Department of Animal Sciences, University of Missouri. See the whole publication at <http://extension.missouri.edu/p/G8910>

Growing Farms: Successful Whole Farm Management Workshop Series



The OSU Extension Small Farms Program is pleased to offer the Growing Farms Workshop Series this year at the North Willamette Research and Extension Center in Aurora. This workshop series introduces farming principles and practices to beginning specialty crop and livestock farmers. Growing Farms is geared to farmers in their first five years, who want to understand the opportunities and risks of farming. Topics include strategic planning, farming operations, marketing, production systems, farm finances, and managing liability. The course will consist of online, classroom and field instruction. Participants receive information necessary to design a whole farm plan, and meet other new farmers, experienced farmers and agricultural advisors.

The Growing Farms workshop series will be held in 4 parts: Wednesdays – Jan. 21st, Feb. 4th, Mar. 4th meeting from 6:00-8:30 pm and a full day of class and farm tours on Saturday, Feb 21st. The in-person classes will be held at the North Willamette Research and Extension Center at 15210 NE Miley Rd in Aurora. Cost for the course is \$295 per person with a \$75 discount for a second person from the same farm. To assist metro area beginning farmers, the West Multnomah and Clackamas County Soil and Water Conservation Districts are offering scholarships to help with *Growing Farms* tuition. Enrollment is currently open for Growing Farms and scholarships are available for residents of Clackamas and Multnomah Counties needing financial assistance.

Check it out at: <http://smallfarms.oregonstate.edu/GrowingFarms2015>. Contact Heidi Noordijk at, 971-801-0392 for more information.

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