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

Sept. 4........Scappoose Bay Watershed Council 7:00 p.m. 57420 Old Portland Rd in Warren

Sept. 6........Master Gardener™ Board Meeting Project Planning @ 10am, Board Mtg @ 10:30

Sept. 6........Upper Nehalem Watershed Council Meeting 6:30 p.m. 1201 Texas Ave, Vernonia

Sept. 11........Lower Columbia River Watershed Council 7:00 p.m. Clatskanie PUD, 495 Hwy 30

Sept. 17.......Beekeeping Workshop 6:00 - 7:30 p.m. Mandy Shaw of Portland Urban Beekeepers

Sept. 19.......Columbia Soil Water Conservation District 7 p.m. 57420 Old Portland Rd, Warren

Sept. 27.......Master Gardener Chapter Meeting 6:30-8:30 p.m. Annual Fruit & Tomato Tasting!

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

Rose stem girdler

Another year, another new insect. The rose stem girdler has been in Oregon for at least 3 years. I believe I saw my first sample several years ago but the larva had left the stem so there could be no positive identification.

The RSG is a beetle in the same group of beetles that the bronze birch borer belongs to. Like the birch borer (which is really working over birch trees here), the larva of the RSG is the problem. The adult female lays eggs on the stems of suitable plants (roses, raspberries, and blackberries, mainly) and the larva emerge and chew their way into the stem. The chewing and further spiral tunneling of the cambium leads first to a thickening and gall-like swelling of the stem, sometimes a discoloration in the area larva are feeding, wilting above the feeding zone, and ultimately some weakened stems toppling over. On raspberries, they seem to prefer locations halfway up the stem to lay their eggs. The RSGs aggregate, calling their friends for the fun and feast. Both renewal and fruiting canes can be affected in the raspberries and blackberries. On roses, they seem to prefer the newest growth.

Right now, routine spraying for these insects probably isn’t warranted. But if you notice stem swelling, it is recommended that you clip off the stem below the swelling and destroy it. You could take it apart first to see if you can find the very tiny larvae.

The commercial small fruit industry, wounded from the spotted wing drosophila invasion, is nervous. There is hope that some tiny wasp parasitoids may offer some natural control.

For more information, see Jean Natter’s article: http://blogs.oregonstate.edu/mgmetro/files/2017/10/nwsltr-2017-11-rose-stem-girdler-final.pdf

Fall webworm, again

We have had so many calls about the fall webworm. Here are some more facts about this insect:

There are over 400 species of trees and shrubs they feed on. But they completely avoid conifers. Fall webworms have two forms, the back-headed form in the northern part of their range and a red-headed form in the southern regions of the U.S.

In our zone, they like to build their webs in upper portions of trees, often on the west side to get the afternoon heat. It is thought that might speed caterpillar growth.

They do no permanent damage to trees!! If you don’t believe me, tie some surveyors tape to a limb that they have fed on and see if it leafs out next year.

Don’t fall off a ladder or roof trying to remove the nests. If they bother you and you can reach them easily, hit the webs with a broom. Since the adult moths fly, there is no evidence that the webworms you kill will affect what you see in coming years.

Lots of things love to eat fall webworms. There are over 90 species that have been found to feast on these rather hairy but nutrient dense caterpillars. The webs offer some protection but birds, fungi, bacteria, and parasitic or predatory insects get their meals. This season, if you watch closely, you will see yellow jackets tearing apart the webs to get at the packets of protein inside.
If an insect or bird gets past the web, all the caterpillars start to writhe violently to scare off the predators.

As a result of predation, large fall webworm infestations seem to peak every 8-16 years. The odds favor fewer next year and in the years to follow but there are no guarantees, especially with climate change altering the biological balances in natural systems.

Most webworm nests are depopulating now as the caterpillars leave their silken home to make protective cocoons where they overwinter as they undergo the transformation into moths.

Don’t confuse fall webworms with the western tent caterpillar. They are different species and have distinct cycles. The western tent caterpillar appears in April-June much more often. Several years ago, there was an abundance of the western tent caterpillars in the Rainier/Alston Mayger area.

**Tomato late blight**

We have had a very nice tomato season to date. As we move through August into September, the chance of rain increases. With it comes the risk of tomato late blight. The late blight fungus thrives in warm, moist conditions and can quickly ruin your tomato crop.

Weather patterns that favor late blight are three or four days of continuously moist weather. It doesn’t have to rain hard. About 15 years ago, we had four days of a “coastal fog” that refused to budge. By the end of it, most of the tomato plants looked like they had been hit with a blowtorch. Leaves turn blotchy brown, stems blacken and the now inedible fruit turns a glassy olive color. There is little genetic resistance to late blight in current varieties with a few modest exceptions (“Legend” and “Peron”). But you can help to reduce the spread by doing the following:

- Never overhead (sprinkler) water at night!! It can accelerate the disease even in dry weather.
- Prune out leaves that don’t look right and destroy them.
- Use a copper fungicide (generally considered to be organic) as a preventative now and again if you see a wet weather ahead.
- Clean out weeds and do some moderate pruning to improve air circulation around your plants.

None of these steps by themselves can stop the disease if conditions really favor it but, by slowing it a bit, can give you a week or two of extra harvest.

**A nod to the sunflower**

Sunflowers rotate their growing point during the day from east to west and then rotate back east at night. This is called heliotropic movement for you botany fans and/or crossword puzzle enthusiasts. All this comes to a halt when the flower buds form. Then, the plants quit rotating and face east permanently. Why east and not south or west? Why stop?

It turns out that flowers facing east get five times the number of pollinator visits and that seems to be related to higher morning temperatures of the flower. Flowers forced to face west and then heated artificially in the morning received more visits than unheated west-facing flowers. So, it appears, as always, it comes down to reproductive success, which for the sunflower means keeping the honey and bumble bees happy the first thing in the morning with a nice warm landing pad.
Spotlight on Insects:

Black Soldier Flies… and your next meal?

I wonder… what cadence song would a soldier fly hum as it dined in your compost… Hmm? That’s right! Let’s talk about Black Soldier Flies! While most of us get annoyed and even repulsed by “flies” as they buzz around our house, land on our food and fling disease-causing microbes all about, there is an extraordinary fly in our natural world. These large, sleek, black insects may resemble a wasp but are harmless to humans.

[Image: Life cycle of H. illucens]

- They are an excellent source of nutritious animal feed: 42% protein and 35% fat
- Soldier Flies provide food for chickens, pigs, trout, catfish and tilapia
- Dried larvae have long-term storage value
- They decompose manure & moderate odors
- Their work is proven to reduce harmful bacteria such as E-coli and Salmonella
- They break down waste faster than microbes
- Check out their voracious appetites: the larvae eat twice their body weight daily!
- Grubs can mature in as few as 10 days
- The adults flies don’t bite – they don’t even have mouths, they just reproduce
- 10# of waste produces 2# of wriggling nourishment for your farm animals

But… why stop at feeding farm animals? When we look to the future, we see a need to both deal with the waste and food requirements of our burgeoning human population. While the U.S. is way behind in the consumption of insect protein, we definitely have a growing interest in the technology of recycling “solutions.” Reclaiming the energy otherwise lost in organic waste is a growing need here in America, especially since statistics show that our landfills now consist of over 12% uneaten, wasted food.

However, go find out for yourself! A quick online search for the Black Soldier Fly Larvae reveals all sorts of interesting material – from feeding your flock or fish, to rearing your own edible grubs indoors. I hear they taste like potatoes (and if I try them I will be sure to write about it!) Meanwhile, remember to identify the insect that buzzes near you. It may be a pest… but it just may be a GOOD soldier!

~ Sonia Reagan, OSU Extension Staff

https://aem.asm.org/

(Info & Purchasing: http://northwestredworms.com/)

Soldier flies are found in all temperate regions worldwide, and are often associated with food and animal waste piles. However, because most of their life is spent in the larval stage, you’d need to dig down in the compost heap to find the large grubs.

Their Latin name, *Hermetia illucens*, is derived from the transparent regions on the adult’s abdomen that give the illusion of a narrow waisted wasp. It is possibly the mimicry of a wasp (they have longer legs and antennae than many flies) which helps the Soldier Fly avoid predation. Besides the essential ecological service they provide as a decomposer, let’s look at some other cool facts, and even take a peek into the future!
Weeds of the month: Field and hedge bindweed (morning glory)

Most gardeners are familiar with these vining and climbing weeds. The field bindweed (*Convolvulus arvensis*) is the lower growing “morning glory” with small white, to white and pink, to pink bell-shaped flowers. The hedge bindweed (*Caylstegia sepium*) is the taller, more robust version with large white flowers that you will find climbing up into ornamental plantings or on fences. Both species are herbaceous perennials, which means that their foliage dies in the fall and returns from the crown/root mass in the next spring. They are pernicious and tenacious weeds of the first order and, especially the field bindweed, can cause considerable crop loss.

Seeds from the bindweeds are long-lasting (20+ years) and have staggered germination over many years.

Alternating temperatures between 58 and 65 degrees will trigger germination. Equipment, livestock, water, and wildlife spread seed. Seeds of field bindweed can survive in a bird’s stomach for 144 hours! If that bird was migrating, the seed could travel hundreds of miles.

Once the seed germinates, the root system spreads laterally in all directions. Along the rhizome, shoot buds are produced. When the shoot emerges, it forms a new crown or node. With field bindweed, the root system of an individual plant can be 18 feet wide and in very good soil, 25 feet deep. Some work years ago at U.C. Davis calculated that some of their bindweed infested fields stored between 3 and 5 tons of carbohydrates in their root systems per acre. That is a lot of root reserve capacity, which indicates why this is such a difficult plant to control. Yield losses in severely infested fields can range from 20-80%. Their vining habit makes harvest very challenging.

While the bindweeds are not generally found in well-managed pastures in Columbia County, they do pose some poisoning risk to livestock. All the species potentially contain alkaloids and other compounds that can cause neurological distress.

Agriculture has herbicides that are selective in various crops and will help control bindweed. Glyphosate, the active ingredient in Roundup™ and other products, is generally effective on morning glory if applied after it has started blooming and into early fall. It has been used by farmers, gardeners, and homeowners with some success as a spot spray or even brushed on leaves with a sponge paint brush. Since glyphosate is non-selective, it can damage desirable plants if you are not very careful. Casaron is an option in woody landscape beds. Apply in early February. Read and follow all label directions when using herbicides.

Fallow tillage is used by organic farmers (and was by our farming ancestors) to reduce field bindweed. The tillage has to be aggressive, which means not letting any shoot survive for more than 12 days. Generally, this required 16 tillage passes over the course of the summer. Shallow hoeing is also effective if repeated at intervals of less than 2 weeks all summer.

It should comfort you to know that the annual morning glory seeds sold for ornamental use will not develop into weeds here, though a few varieties are reported to have, in some circumstances, reseeded themselves.
OSU Extension Service encourages sustainable gardening practices. Preventative 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. First consider cultural, and then physical controls. The conservation of biological control agents (predators, parasitoids) should be favored over the purchase and release of biological controls. Use chemical controls only when necessary, only after identifying a pest problem, and only after thoroughly reading the pesticide label. Least-toxic choices include insecticidal soaps, horticultural oils, botanical insecticides, organic and synthetic pesticides — when used judiciously. Recommendations in this calendar are not necessarily applicable to all areas of Oregon. For more information, contact your local OSU Extension Service office.

**Maintenance and Clean Up**
- Recycle disease-free plant material and kitchen vegetable and fruit scraps into compost. Don’t compost diseased plants unless you are using the "hot compost" method (120° to 150°F).
- Harvest winter squash when the "ground spot" changes from white to a cream or gold color.
- Pick and store winter squash; mulch carrot, parsnip, and beets for winter harvesting.
- Protect tomatoes and/or pick green tomatoes and ripen indoors if frost threatens.
- Reduce water on trees, shrubs, and vines east of Cascades to harden them off for winter.
- Stake tall flowers to keep them from blowing over in fall winds.
- Dig, clean, and store tuberous begonias if frost threatens.
- Harvest potatoes when the tops die down. Store them in a dark location.
- Optimal time for establishing a new lawn is August through Mid-September.
- Aerate lawns.
- (Early-September): Apply 1 lb. nitrogen per 1,000 sq.ft. to lawns. Reduce risks of run-off into local waterways by not fertilizing just prior to rain, and not over-irrigating so that water runs off of lawn and onto sidewalk or street.
- top irrigating your lawn after Labor Day to suppress European crane fly populations.

**Planting/Propagation**
- Divide peonies and iris.
- Plant garden cover crops as garden is harvested. Spread manure or compost over unplanted garden areas.
- Plant or transplant woody ornamentals and mature herbaceous perennials. Fall planting of trees, shrubs and perennials can encourage healthy root growth over the winter.
- Plant daffodils, tulips, and crocus for spring bloom. Work calcium and phosphorus into the soil below the bulbs at planting time. Remember when purchasing bulbs, the size of the bulb is directly correlated to the size of the flower yet to come in spring.
- Plant winter cover of annual rye or winter peas in vegetable garden.

**Pest Monitoring and Management**
- Continue monitoring late-season soft fruits and berries for Spotted Wing Drosophila (SWD). If SWD are present, use an integrated and least toxic approach to manage the pests. To learn how to monitor for SWD flies and larval infestations in fruit, visit [http://swd.hort.oregonstate.edu/gardeners](http://swd.hort.oregonstate.edu/gardeners).
- Apply parasitic nematodes to moist soil beneath rhododendrons and azaleas that show root weevil damage (notched leaves).
- Bait for slugs with traps or iron phosphate products that are safe for use around pets.
- Monitor trailing berries for leaf and cane spot. Treat if necessary.
- As necessary, apply copper spray for peach and cherry trees.
- Spray for juniper twig blight, as necessary, after pruning away dead and infected twigs.
- Spray susceptible varieties of potatoes and tomatoes for early and late blight.

**Houseplants and Indoor Gardening**
- Clean houseplants, check for insects, and repot and fertilize if necessary; then bring them indoors.
An inordinate love of redwoods

Rod Nastrom has a love affair with trees. He credits that to a childhood spent around logging and lumber mills in the McMinnville area and an early visit to the giant coastal redwoods in northern California. We met recently to talk about the coastal redwoods that he has been planting on his timber and Christmas tree farm in Warren.

In 1985, you couldn’t buy redwood seedlings, so Rod started his own from 2” tall redwood sprouts he started. He grew them out to 4” tall and then planted. He “guarded those first four trees with (his) life.” Of the original four, one is now 142 inches in circumference or ~45 inches in diameter; two are about 96 inches (31 inch diameter); and one is ~ 75 inches (23 inch diameter). Darned impressive for 33 years of growth.

In the mid-1990s, redwood seedlings became more available. Rod now has hundreds of redwoods at all stages growing on his property.

Rod has a lot of microclimates on his property. He started his serious redwood planting in a north/south canyon under a canopy of alders. There are a lot of seeps and springs coming out of both sides of the canyon wall. He found that trees planted under a deciduous tree canopy grew much better than trees planted in full sun on higher, open ground. He reasons that the redwood trees are actively photosynthesizing perhaps a month before the alder leaves come out and several months after they drop. They are also getting recycled minerals and nitrogen from the alders. And the trees are somewhat protected from temperature extremes. Trees planted under Douglas fir grow spindly and tall. There is too much shade and he doesn’t recommend it.

Rod has never lost a coastal redwood directly to winter weather alone. He does some lower limb pruning when the trees are 4 to 6 inches in diameter but not before. But Rod found that if he prunes off branches of well-established trees within 2-3 months of cold weather, the trees can be killed or have severe die-back. As a consequence, he does pruning in late May to early June.

He also discovered that if he prunes out lower limbs all around a tree, there is a good chance that the tree will produce multiple leaders. This isn’t good as it weakens the growth from that point on. So, in a given year, he only prunes one side.

He has found that most redwood trees grow too tall and too fast for the diameter of the trunk. Trees 5 inches or less in diameter can just bend over into a “U” from the excess upper canopy weight of a snow or ice load. But they don’t snap. Rod has pulled some back upright and tried to stabilize them but it isn’t easy and he doesn’t recommend it. But the remarkable redwood will send up a new leader at the top of the “U” and the
tree will continue and thrive as if nothing happened. There will just be this odd, U-shaped buttress on the tree that will eventually die or be pruned.

Rod learned that deer and elk don’t browse redwoods but they antler rub them. They can kill a redwood two inches or less in diameter above where they rub. But redwoods, unlike most conifers, can re-sprout and create a new leader (“if the roots are alive, the tree is alive”). He protects his seedlings with wire cages until the tree trunks are 4 inches in diameter. After that, rubbing won’t kill the tree.

Rod has seen swarms of squirrels of various types descend on his trees, pulling off bark and, in some cases eating the cambium layer. Sometimes squirrels appear to be harvesting the bark for nests. Small trees can be killed but once they get to a certain age, the bark-stripping doesn’t really hurt them.

It has been a great pleasure to get to know Rod and watch the trees grow. Besides redwoods his farm has different species of conifer Christmas trees. His native trees include Douglas fir, big leaf maple, western red cedar, cascara, alder, and serviceberry. But there are a number of other trees. His English oaks (from acorns carried back from England) produce prodigious quantities of acorns that the jays and the squirrels are planting everywhere. Same with the European chestnut, a few of which were growing on the farm when he bought it. Now there are many more, planted by wildlife, cared for by Rod and Sandy. The tree farm has approximately 100 different conifer and deciduous trees in total. This is real forest diversity. One year, his farm was the site for the Oregon Truffle Society’s annual fall truffle hunt. It had been a warm moist fall and the truffles were abundant among all the different species that grow there. They returned several years later, in a dry fall, and few truffles were found. Nature, as Rod knows, bats last.

If you are interested in planting redwoods on your land, let me know (extension ph: 503-397-3462). If there is enough interest, it might be possible to get Rod to talk about them in more detail. This column only touches the surface of what he knows.

**The right ant for the job**

A clever researcher at the University of Oregon took a worker ant and put it under a proton analyzer. He found that the ant had zinc-armored mandibles to withstand the wear of cutting foliage for the ant colony. This propelled him into a career of study related to biomechanics that has had both biological and industrial implications.

Of interest to me is the fact that he could measure wear on the mandibles of leaf-cutting ants in the tropics and determined that the more worn the mandibles became, the slower they cut the leaves. But here it gets really interesting. The slower they cut, the more energy it took to support that ant for the energy they were getting from the leaves. So the ant wasn’t thrown on the ant trash heap but rather was transitioned to the job of carrying the cut leaf piece back to the nest rather than the more energetically demanding leaf cutting itself.

Ant behavior is determined by a complex set of genetics and “serio-chemical” signaling. Do they know when they hit leaf-cutter retirement? Does something change in their response to the signals? Is it clock-based or functionality based? That is yet to be determined. But it is very interesting, at least to me.
Farm and livestock notes

Plant resistance to herbicides

The use of “Roundup-Ready” genetically modified corn and soybeans on large acreages in the Midwest has stimulated the evolution of Roundup resistant weeds and a lot of scientific effort to uncover the biological and molecular basis for this resistance. The picture emerging is both fascinating and scary. Weeds can’t pick up their roots and run away. To survive, they must engage genes that somehow inhibit the effect of the herbicide on them. Some activate genes that block the specific point the herbicide interferes with the plant biochemical pathway. Others capture the herbicide molecule into a vacuole and hold it harmlessly there. Another strategy is to create redundant pathways that there herbicide interferes with allowing the plant to out-grow the effect.

What is worse, some weeds appear to be evolving resistance pathways against a number of different herbicides of quite variable modes of action. The use of a blunt instrument like glyphosate (the active ingredient in Roundup) over and over again accelerates resistance evolution. But who knew it would be so fast and so complex?

Livestock feeding habits

Cows prefer grazing grasses over legumes and will graze those species that are most palatable. For example, they’ll graze ryegrass before tall fescue. Their pasture intake is directly affected by the amount of feed that you offer in the pasture.

Cattle on pasture will graze a maximum of 8-10 hours a day and spend an additional 3-4 hours ruminating the feed they’ve gathered while grazing. A cow’s pasture intake is controlled by her biting rate.

Research studies show a cow will take about 36,000 bites per day consuming a maximum of about 24 lb. of dry matter if conditions are ideal.

The ease with which the animals can tear off and consume the pasture plants, and the quality or maturity of the pasture, greatly influence biting rate. In addition, feed intake is reduced if you don't control livestock's tendency to walk considerable distances while grazing.

Sheep tend to graze selectively, preferring clover, grass and short lush feed to tall coarse plants. They graze for up to 8 hours per day and even when feed supplies are short, will not graze much over 10 hours per day. Young and aged sheep don't compete well with mature ewes for pasture and should be run in separate flocks. Continuous grazing of the pasture by sheep will result in selective grazing or patch grazing.

You allocate feed when you control the height of the pasture presented to the animal, the size of the grazing area they're given, and the percentage of the pasture allowance they're forced to use.

In "residual dry matter" grazing management, you control feed intake and animal production by adjusting the amount of forage dry matter (DM) that remains when you move the livestock to the next pasture. If you maintain forage quality, the height of the pasture determines how much feed the animal can consume and how much milk or weight gain is produced.

Pasture allowances for high-producing livestock need to be generous if they're to consume the 20 plus pounds of pasture dry matter they need daily. High production from pasture requires low use at any one grazing, which means consumption of 60% or less of the pasture allocation or available forage.

From Lynn Cannon, Extension Agent, retired.
Please join us as we celebrate Chip Bubl’s 40 years of extension service in Columbia County! Stop by or drop him a note to congratulate him on this very special 40th work anniversary!