

ii Heads Up !!

June is here and we're already far along in the growing season. This month is critical in keeping summer gardens healthy.

Vol. 2, No. 3, June 2016



Mycelial fans—
a sign of Armillaria

Got Root Disease?

Armillaria is an aggressive root disease infecting many woody trees and shrubs as well as herbaceous plants. A fungal disease infecting the roots and bases of trees and shrubs, armillaria causes them to decay, weaken or die.

The symptoms of armillaria reflect a generally unhealthy plant with declining vigor. Specific signs of the disease are:

(Go to Page 3, "Armillaria Root Disease")



Photos courtesy of Whitney Cranshaw, Bugwood.org

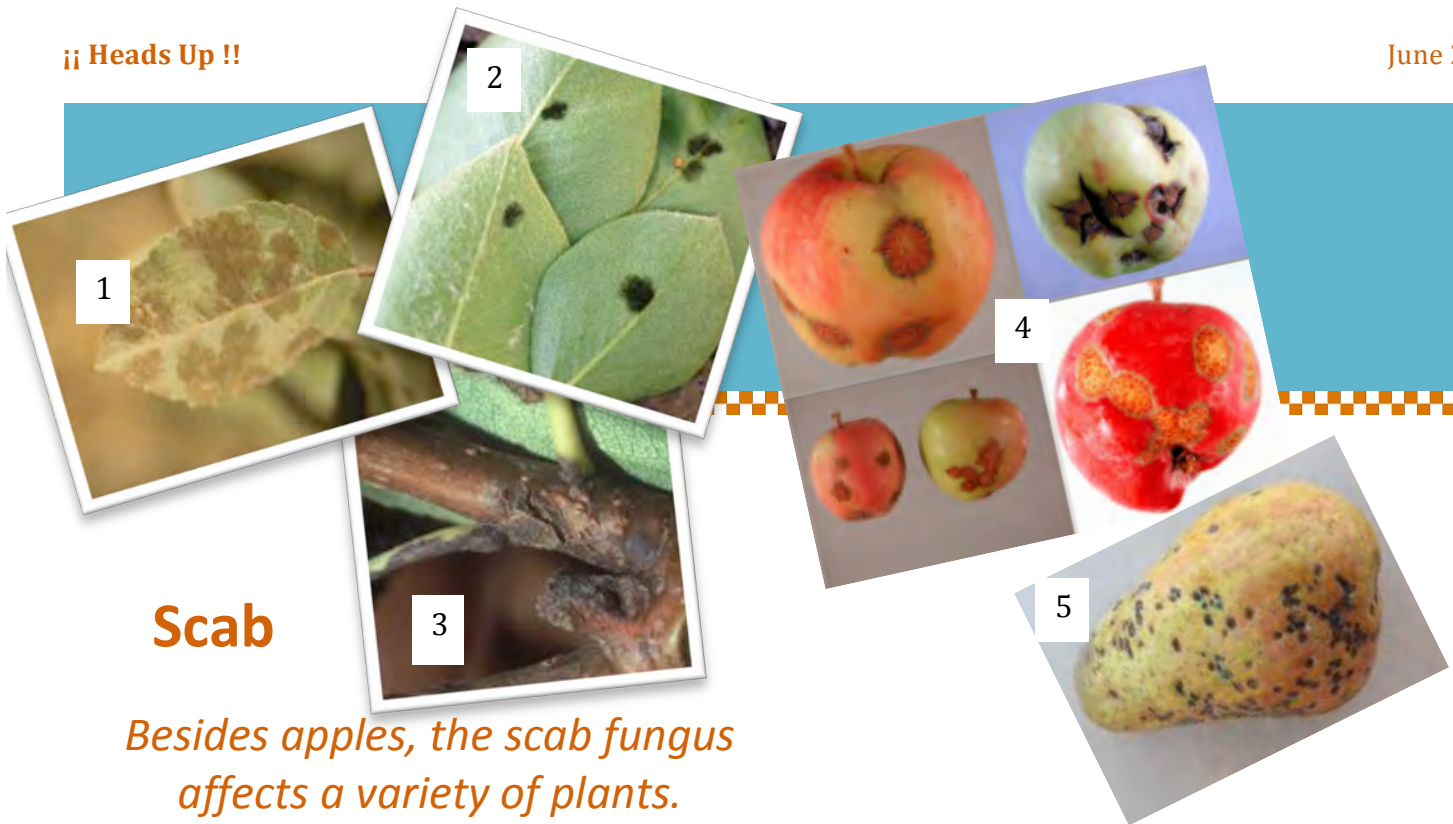
Despite being admonished earlier, two sassy Apple Maggot larvae meet again while eating. One says to the other, "You're nothing but an apple maggot!" The other pertly answers, "Oh yeah?!!, well, so is your old man!!!"

Fact or fiction? Guess! Then see page 4

ii Heads Up !! is a regular publication of the King County Master Gardener Diagnostic Lab. Contact us at Diagnostic.clinic@wsu.edu

Is it a bird, plane or Superman... ..or a pear tree?

Actually, it's a plum tree? In May, at the Diagnostic Lab, we had a sample that was "labeled" as a pear tree. So the Diagnosticians began to think of diseases of the *Pyrus* family. But the sample was actually a plum (*Prunus* family). BIG DIFFERENCE! Clients sometimes don't know their flora. Occasionally, neither do we! Many plants look similar. Be sure you know before you begin diagnosing!



Scab

Besides apples, the scab fungus affects a variety of plants.

Scab, caused by the fungus *Venturia*, affects many apples and *Malus* family kin in King County every year. Why? Because clients may not keep tidy gardens. The fungus overwinters on fallen apple leaves and rotten fruit in the vicinity of the tree. Come spring, the warming sun and moisture stirs the fungal spores and breezes transport them to the new, tender

growth where the damage begins. Do you get the picture? In photo 1, there's a chlorotic apple leaf. Photo 2 shows black spotted pear leaves. Fungal leaves usually fall prematurely and should be disposed of. Photo 3 shows scab lesions on a twig. These should be cut out and the entire tree pruned to promote air circulation.

Photos 4 and 5 show scabby fruit. Scab fungi also infect crabapples, cotoneasters, hawthorns, pears and pyracantha. Other plants (like potatoes and cukes) suffer from scabs...but different fungi cause them.

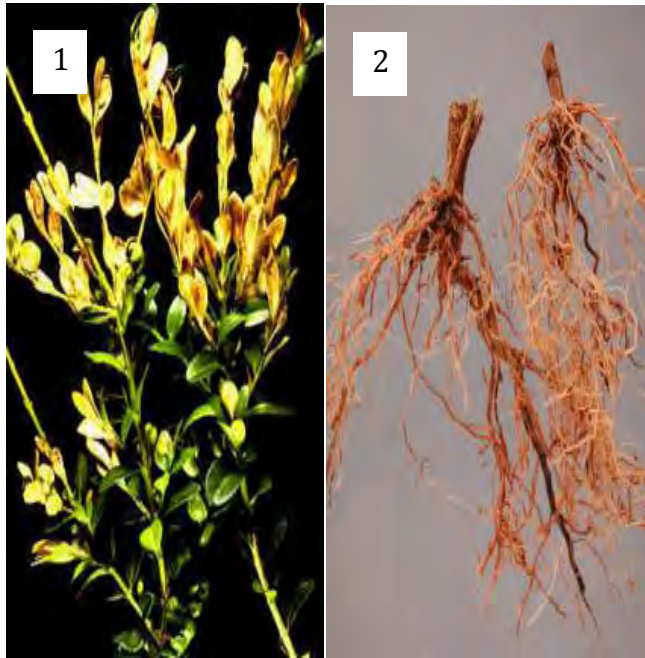
Clients can take a long-term approach by planting scab-resistant varieties to avoid infections.

Boxwood...overused and problematic

There may be landscapers who don't insist on having a boxwood border, but they're hard to find. Let's face it, boxwoods have problems beyond their "special" odor when it gets warmer. Used in a monoculture hedge, there's bound to be a plant that's not performing well and so the total green effect is lost...as is curb appeal.

Insects: think of leaf miners, psyllids and mites. They wreak havoc by destroying the look of the tiny leaves. ↓





Boxwood (Continued from Page 2)

Fungi: spores in the undergrowth of the boxwood cause leaf spot. There's nothing special about a plant showing brown, diseased growth.

If clients like pruning and haven't disinfected their Felcos, or leave wounds when cutting, more brown can be expected from cankers (Photo 1).

If planted in a poor location or overwatered, phytophthora may occur. Check the roots! (2)

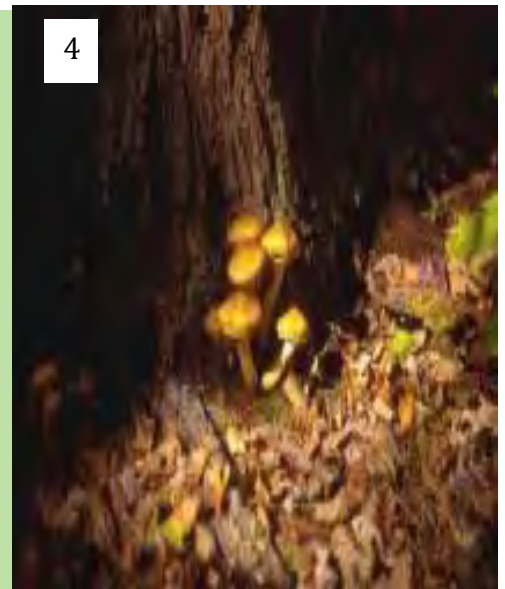
Perhaps hedgerows can be suggested as alternatives.

Armillaria Root Disease

(Continued from Page 1)



1) mycelial fans are mats of fungal mycelium growing under the bark of woody shrubs, usually on the roots or at the root crown. The mycelium grows and decomposes the wood for nutrients and will infect healthy plants through root-to-root contact (Photo on page 1);



2) rhizomorphs, sometimes called shoestrings, are bundles

of fungal hyphae that either grow under the bark or through the soil. Rhizomorphs are an important way the disease is spread (Photo 3);

3) honey mushrooms may appear in the fall on diseased wood (Photo 4)

There are no practical ...or even successful...ways of destroying armillaria. There are currently no fungicides that will kill it. The best way to treat armillaria is to remove and destroy any trees or shrubs that show signs of the disease, grind the stump and remove all roots larger than 1 inch in diameter. It's probably wise to remove soil within a 3-foot radius of the crown of the destroyed tree/shrub and NOT to replant immediately.

When it's finally time to replant in the vicinity, be sure to have your clients select armillaria-resistant species.

“APPLE MAGGOT” WORD SEARCH

Ammonia	Apple	Bagging
Bands	Crabapple	Dimples
Flesh	Fruitfly	FWing
Glue trap	Hawthorn	Honeydew
Kaolin	Kittitas	Maggot
Nematodes	Pomonella	Pyrethrum
Rhagoletis	Spring	Sting
Tunnels	Urbanized	Whitedot
Yakima		

Directions: Find as many Apple Maggot-related words above as you can in the plethora of letters to the right. Words can be horizontal, vertical, diagonal; both forward and backward. Good luck. A skilled diagnostician can do the puzzle in less than three minutes. Can you?

N P T S A S B H E P N S A Y Y
 W T A P P A E L X Y R I M A K
 U H P R G R P B U R O T M K J
 H L I G T P I R T E H E O I Q
 E S I T A E B N G T T L N M Y
 X N E B E A U R G H W O I A N
 G A A L N D P L F R A G A S M
 L R U I F Q O O G U H A F L W
 C J Z Y S S V T M M R H I E G
 N E M A T O D E S O N R D N N
 D Y L F T I U R F I N Y Q N I
 K I T T I T A S L C E E A U W
 S E L P M I D O Z N S A L T F
 I I K S D N A B O A Y R A L P
 S T I N G K J H M A G G O T A

The *Rhagoletis pomonella* (or apple maggot) came to America as colonists planted apples. Their first host was the hawthorn tree but they quickly found out that apples were much bigger “dining spots,” more nourishing and earlier to fruit. Crabapples also were a good munch for apple maggots (AM).

As settlers moved west, the friendly AM were as pleased as punch to join them. The AM is in all of western Washington and, across the Cascades, they’re in Kittitas, Yakima and Spokane counties.

AM come to life annually in late spring: think June. They emerge as fruit flies with black bodies, red eyes, a white dot on their abdomen and an “F” insignia on their wings. Their bodies have bands: 3 for males; 4 for females. The male’s abdomen is roundish while the female’s is pointed. ➔

**Nothing says “delicious”
 better than biting into an apple
 and finding an apple maggot!**

Though the fruit flies begin their lives sexually immature, they quickly discover the “dining joys” of honeydew and sap and, within two weeks, they’re strong and ready to mate.

Females lay eggs...about 300...for the rest of their one-month life. They lay eggs by “stinging” apples on preferred softer and earlier types. This causes dimples to appear on the apple skin.

The eggs are planted right below the surface and hatch within a week’s time. The larvae (AM) grow inside eating the apple flesh and tunneling. They don’t move toward the core like codling moths but their tunnels rot the apple making it fall. Then the AM leisurely crawl out, bury themselves and wait for next year when they, too, will emerge as fruit flies.

Apple Maggots (Continued from page 4)

Management

The key to controlling AM is getting them when they fly. Once they're in the fruit, it's too late. So, what to do?

Culturally, glue traps, shaped as red apples, are useful. With the red color and an ammonia smell, which are both attractive to fruit flies, they get stuck on the apple and...curtains! Glue traps must be replaced regularly.

Non-toxic kaolin clay, sprayed on immature apples, also works but can be cumbersome in repeated applications.

Bagging (plastic sandwich-type bags) is a good preventer of apple damage. A hole must be cut in the bottom of the bag so moisture can drain.

Perhaps most gardeners are familiar with nylon stocking "footies" that are used as an effective tool.

Biologically, beneficial nematodes (*Steinernema feltiae*) can be introduced into the soil. Beneficial wasps are also used but once the egg is in the apple, nothing works.

Chemically, organic pyrethrum (from chrysanthemums) is available although, please note, most homeowner-applied sprays have been outlawed.

Any damaged (dimpled) fruit should be destroyed. It's helpful, therefore, to have dwarf rootstock so that the highest produce can be reached.

The bottom line is that AM will always be around. They have become urbanized and opportunistic. Only the most persistent apple grower will be rewarded with an undamaged crop. Hint: Plant late-maturing varieties.

Incense cedar is the alternate host of the Pacific Coast Pear Rust. To control the fungus affecting pears, you must remove all incense cedars within a wide radius of pear trees. That can be a Herculean task. So, the best thing clients can do is to keep tidy gardens and plant resistant varieties of pears (especially Bartlett).

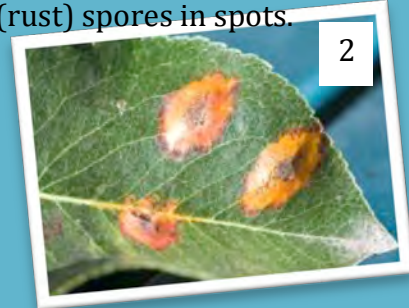
Pear Trellis Rust has it even worse because the alternate host is (various cultivars of) juniper. No homeowner chemicals are available. Other than impeccable hygiene in the garden, clients can pray to the garden gods for no winds during the growing season. But spores are still going to come.



Pear Rusts

Pacific Coast Pear Rust

appears first, usually in June. As fruit appears, it is deformed, looks like it has a bad case of zits and falls (Photo 1). Sometimes leaves have orange (rust) spores in spots.



Pear Trellis Rust

appears later in the season but affects foliage more dramatically. You can see both sides of the "rusty" leaf in photos 2 and 3. Prior to 1997, King County had no infections. Now it's uncommon NOT to see affected trees. ↘



Harrrr... ..Thar be Black Spot (on Rose), Maties...Well...Maybe



1



2

Long John Silver, the protagonist pirate in Robert Louis Stevenson’s *Treasure Island*, receives the “Black Spot” as a judgment of “guilt.” Your client may be the recipient of the fungal “black spot” on their roses because they were simply guilty of planting susceptible varieties.

You’ve seen it: roses with black spots on their leaves, many of them yellow and fallen. Sometimes whole bushes are defoliated. Infection continues throughout the summer by spores splashed on leaves by rain and overhead, summertime watering (Photo 1).

But your client says her rose black spots look different. They start out as dark red, purple or black spots. The centers of the spots eventually turn grayish to white and can crack or drop out. This fungal disease is Anthrachnose. It affects some roses but ignores others. (Photo 2)

The good news, if there is good news when dealing with fungal problems, is that both diseases are similarly managed. Spores overwinter on canes so early spring pruning is important. And, as with most fungal problems, clean up is crucial. Rake fallen leaves and remove affected leaves still on the plant. Hortsense and PNW have homeowner chemical recommendations.

HINT: Plant resistant varieties!

The *Quick and Dirty* of past Junes...but no space here to go into detail

Year	Samples
2012	82
2013	103
2014	96
2015	89

Are you getting the full value out of ;; Heads Up !! ?

Underlined words in your PDF copy indicate hyperlinks that can be clicked for more information. Links will take you to one or more of the following online publications:

1. Hortsense (WSU);
2. PNW Plant Disease Management Handbook; or
3. PNW Insect Management Handbook.

Plant Name	Top Problem
<u>Arborvitae</u>	<u>Twig blight</u>
<u>Azalea</u>	<u>Leaf gall</u>
<u>Camellia</u>	<u>Cottony camellia scale</u>
<u>Cedar</u>	<u>Needle blight</u>
<u>Dogwood</u>	<u>Anthrachnose</u>
<u>Fir</u>	<u>Balsam woolly adelgid</u>
<u>Grape</u>	<u>Erineum mite</u>
<u>Heuchera</u>	<u>Rust</u>
<u>Maple</u>	<u>Verticillium wilt</u>
<u>Prunus</u>	<u>Brown rot</u>
<u>Rhododendron</u>	<u>Powdery mildew</u>



We’re trying to get our ducks in a row and need your help.

When your clinic submits a sample to the Diagnostic Lab, INSURE that your clinic’s name is on the form.

And INSURE that the client’s e-mail address is on the form and legible. Many Thanks!