OREGON STATE UNIVERSITY EXTENSION SERVICE

HORT UPDATE

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Lynn E. Longo

Extension Horticulturist
Oregon State University

Coming Attractions

- May 16 & 17
  Soils Workshop,
  The Dalles Discovery Ctr.
- June 1
  Pre-Harvest Tour

Inside this issue:

Exotic Borer Beetles Found in The Dalles

On March 17, representatives from the Oregon Department of Agriculture came to my office to inform me that in 2004 they had trapped a number of exotic borer beetles at the Amerities (Kerr-McGee) plant in The Dalles. The most disconcerting of the species trapped was the granulate or Asian ambrosia beetle (GAB) (*Xylosandrus crassiusculus)*. In 2004 they had trapped 156 of these insects in non-specific traps located around the tie plant.

It was believed that this beetle hitchhiked on raw ties imported from the southeastern U.S. The beetle is originally from Africa and southeast Asia and came to the United States a number of years ago and has established widely in the southeast.

Granulate Ambrosia Beetle
Photo by Jim LaBonte, ODA

GAB is reported to attack over 200 species of plants, mostly hardwoods including cherries, pears, apples, grape, peach, plum, cottonwood, poplar and willow, along with many ornamental species.

GAB bores into wood but does not actually eat the wood. Adults and larvae feed on a symbiotic fungus ("ambrosia") that the beetle introduces into the infested wood. The fungus plugs up the tree's vascular system and can eventually kill the tree. Trees with a trunk diameter of 3 inches or less are often killed by as few as 5 GAB. Trees of this size are almost always killed by 10 or more GAB.

Once a tree is infested, no chemical controls will save it. Juvenile trees, up to three years old, are usually killed. Mature trees are more likely to survive but may serve as a staging base for the beetle to attack nearby younger trees. For this reason, the general control strategy is to cut down and destroy any infested trees immediately.

Apparently, healthy trees may be attacked. Trees with a diameter of 3 inches or less are preferred, but injured or stressed older trees can also be attacked. Newly transplanted trees are especially vulnerable and are usually attacked at the root collar.

GAB makes a perfectly circular entrance hole approximately 2 mm in diameter. Long toothpick-like strings of compacted sawdust may be found emerging from these holes. Unfortunately, other wood boring insects in Oregon cause similar damage.

Eggs are laid in a brood chamber, and larvae hatch and feed on the symbiotic fungus

Exotic Borer Beetles ...continued

growing on the galley walls. A female may produce up to 100 offspring and several generations per year.

During the course of the ODA's trapping program, other exotic ambrosia beetles have also been found in the same traps. These include three potential pests to the orchard industry: the apple wood stainer (*Monarthrum mali*), the hardwood platypus (*Euplatypus compositus*), and the oak platypus (*Oxoplatypus quadridentatus*). Other potentially injurious wood boring beetles foreign to Oregon have also been trapped.

Literature cited:
Anonymous (2005). Pest Alert: The Granulate Ambrosia Beetle. Oregon Department of Agriculture.

ODA Attempts to Monitor, Eradicate Beetles

In order to determine the extent of the infestation of exotic borer beetles the ODA has placed 180 traps around the Amerities plant. These traps extend south through the urban boundaries of The Dalles and penetrate the surrounding orchard area. These traps will be checked on a regular basis throughout the season.

In addition to monitoring the potential infestation the ODA is planning to spray the trees immediately surrounding the plant and the ties in the plant with a pyrethroid insecticide. No insecticide will be able to kill an insect inside the wood, but it is hoped that insects emerging or entering the wood will be killed.

Photo by Jim LaBonte, ODA

Granulate Ambrosia Beetle Trapped this Year in The Dalles

The Oregon Department of Agriculture announced on May 4 that several of their traps had caught exotic borer beetles, including Granulate Ambrosia Beetle (GAB), this year. On April 18-26 one GAB was found in a trap at the Amerities plant. During that same sampling time an apple wood stainer (*Monarthrum mali*) was caught in a trap located at 15th and Montana St. in The Dalles. This is another insect that could potentially threaten the cherry industry. The find is significant in that it was found approximately 2/3 of a mile from the tie plant and may mean that the insect is established in The Dalles. Two other apple wood stainer insects were trapped earlier in the year at the tie plant.

Three yellow banded timber borers (*M. fasciatum*), have also been trapped this season, one near Dry Hollow school. This insect is not thought to be a threat to the cherry industry but may impact ornamental or timber trees.

Union Pacific Stops Importation of Ties from S.E.

Photo by Jim LaBonte, ODA

On May 4, the Union Pacific Railroad announced during a conference call of The Dalles/Wood Borers Contact Group, that it had stopped the importation to The Dalles of both hard and soft wood ties from the Southeastern United States. They further stated that they would not begin the re-importation of these ties until they had worked out a protocol with the Oregon Department of Agriculture that would assure that imported ties were of a minimal threat. Possible protocol includes treatment of ties at source or destination with a product that would kill emerging borers or the drying of the ties before they reached The Dalles. The borer species that threaten the fruit industry in The Dalles will not live in dried wood.

Cherry Fruit Fly Model Available by Mike Omeg

The cherry fruit fly is a pest of major importance to the cherry industry. In 2003 a fruit fly find from a local orchard reminded us that cherry fruit fly remains a threat. For many decades the timing of sprays in Wasco County for fruit fly control was determined using trap catches from backyard trees in The Dalles. However, an effective backyard spray and wild cherry tree removal program has made it virtually impossible to trap fruit fly in The Dalles. Several degree-day models used in other areas of the United States to predict fruit fly emergence are not accurate at predicting fruit fly emergence in Wasco County. As a result the timing of fruit fly sprays in Wasco County orchards has been based on trap catches in Hood River.

In 2002, Drs. Yoohan Song and Helmut Riedl began the development of a cherry fruit fly model specific to the Mid-Columbia. This model is based on over 50 years of fruit fly trap catches and weather data from The Dalles and Hood River. You can now access this model using the Wy'East RC&D's IFPnet weather station system. For more information on the model or using IFPnet please contact me at 541-296-2391x102 or mike.omeg@wyeastrcd.org. Please keep in mind that degree-day models are not perfect and should be used in combination with regular field scouting, knowledge of field history and common sense.

Degree-days for first emergence. There are different levels of degree-day accumulation required for fruit fly emergence in The Dalles and Hood River/Mosier orchard areas. This difference is likely caused by differences in spring rainfall. **If using the model to time fruit fly sprays you should begin spraying when a weather station in or near your orchard reaches the degree-days listed below.**

Location	Degree-days
The Dalles	990
Hood River/Mosier	860

Accumulated Degree-days as of Monday, May 9, 2005. Below are the current degree-day accumulations for various locations in Wasco and Hood River counties. See the previous table to determine the degree-days required for beginning fruit fly sprays.

Location & Weather Station	Degree-days
Dallesport @ OVF Dallesport	790
Mill Creek @ Treaty Oak	799
Dry Hollow @ Cooper Barn	722
Threemile @ Cemetery Block	721
Dufur @ Sugg Dufur	494
Mosier @ Molesworth	678
Parkdale @ Aubert	494
Hood River @ MCAREC	610

Mildew Pressure Increases with Rain, Humidity

The rainy weather that we've experienced in the last few day's increases the potential for mildew infection. Actually, the conidial or summer spore stage does not need water in order to infect, but only high humidity. Temperatures of 70˚ F coupled with high humidity are optimum conditions for infection. Temperatures have been relatively mild even during the rains and temperatures are expected to increase over the next few days. Wet ground under the trees and warm temperatures will increase the potential for infection.

With over an inch of rain in many areas mildew sprays may have washed off and protection may no longer be satisfactory. It may be wise to apply a mildewcide as soon as possible in order to protect developing foliage and expanding fruit.

Cultural control methods can also be effective to reduce mildew pressure. This time of year it is a good idea to remove sucker shoots to open up the canopy to light and air movement. Leaves on suckers, due to the fact that they are rapidly growing and succulent, are usually among the most vulnerable new tissue to mildew infection.

On the other hand, according to Dr. Helmut Riedl, insecticides applied prior to the rain do not need to be reapplied as long as sufficient drying time of 4-6 hours took place. Both Success and Intrepid will provide adequate control unless the rains came prior to drying.

Symptoms of powdery mildew on a cluster of 'Bing' cherries. Note light dusting of spores on fruit surface.

Closeup of symptoms of fruit infection. Note fungal growth on fruit surface and scarring.

Early signs of foliar powdery mildew.

Advanced symptoms and signs of foliar powdery mildew.
Note leaf curling, a characteristic symptom.

Numerous cleistothecia of *Podosphaera clandestine* on the surface of severely infested leaves of 'Montmorency' tart cherry.

Photos by Gary Grove

Pre-Harvest Tour

Wednesday, June 1, 2005

Stop #1 **Orchard View Farms, 4055 Skyline Rd.**

8:00 a.m. Coffee and Donuts courtesy of G.S. Long

8:15 a.m. Chelan and Gibraltar: Growth habit and fruit quality

Low Impact Harvest: Bin picking on a large scale

Natures Choice and EuropeGap certification

Stop #2 **Dave Meyer Orchard, 3755 Skyline Rd.**

Central Leader Lapins on Gisela 6 and 12

Central Leader Lapins on Krymsk 5 and 6

Stop #3 **John Carter Point Block**

Straw mulch around trees

Demo of straw chopper

Compost Teas (Shepard Smith, Consultant)

Stop #4 **Mel Omeg Copper Block**

Combined drip/micro sprinkler irrigation system

Irrigation monitoring (Jac La Roux, Consultant)

Irrigation/ground cover trial (Dr. Frank Yin, OSU MCAREC)

Central leader Regina on Gisela 6

Stop #5 **Dave Cooper Orchard, 2270 Dry Hollow Road**

No host lunch catered by Casa El Mirador ($8.00)

Update on Exotic Borer Beetles infestation by ODA representative

OCDC, La Clinica reports

Wasco County Fruit & Produce League Report

OSCC Report

Crop Estimate

2004 Wasco County Sweet Cherry Production Results

Compiled by Clark F. Seavert, Extension Economist

2004 Wasco County Sweet Cherry Production and Value to Grower

		Return to Grower		
Crop	**Tons**	**Total Crop Value**	**Value/Lb.**	**% of Crop Tonnage**
Fresh Cherries	15,643	$ 30,085,864	$0.96	49.50%
Brine Cherries	6,775	$ 5,716,546	$0.42	21.44%
Canned Cherries	1,337	$ 1,212,764	$0.45	4.23%
Freezer Cherries	3,362	$ 2,748,597	$0.41	10.64%
Culls	4,781	$ 1,232,027	$0.13	15.13%
Total	31,602	$ 40,995,798	$0.65	

Wasco County Five-Year Average Production and Value of Cherries Packed to Grower: 2000 - 2004

Crop	**Tons**	**Total Crop Value**	**(Return to Grower) Value/Lb.**	**% of Crop Tonnage**
Fresh Cherries	12,612	$ 17,722,032	$0.70	54.33%
Brine Cherries	6,349	$ 4,116,273	$0.32	27.35%
Canned Cherries	1,250	$ 1,032,171	$0.41	5.39%
Freezer Cherries	3,001	$ 1,580,385	$0.26	12.93%
Total	23,212	$ 24,450,861	$0.53	

2004 Wasco County Fresh Market Sweet Cherry Production

Variety	**Tons**	**(Return to Grower) Value/Lb**	**% of Crop Tonnage**
Bing	14,671	$ 0.77	72.35%
Lambert	206	$ 0.53	1.02%
Chelan	247	$ 0.98	1.22%
Rainier	422	$ 0.99	2.08%
Lapins	2,860	$ 0.84	14.11%
Skeena	41	$ 0.77	0.20%
Regina	77	$ 0.87	0.38%
Sweetheart	1,545	$ 0.74	7.62%
Others	210	$ 0.51	1.03%

OSU Oregon State University Extension Service

Cool Cherries Quickly

I recently attended a seminar where Marius Huysamer, a South African scientist gave a presentation on post-harvest handling of cherries. Dr. Huysamer found that cherries held in the orchard for one hour after harvest had a vapor pressure deficit of 29 mbars. Once the fruit was cold the vapor pressure deficit fell to only 0.5 mbars. Consequently cherries stored in the orchard for **one hour** after harvest had as much water loss as cherries in cold storage would have after **58 hours (29/0.5 = 58)** Huysamer.stated "the driving force for moisture loss is therefore 58 times higher prior to cooling than when the fruit is cold." It is obvious from these data that it is important to move your cherries to the hydro-cooler and into cold storage as quickly as possible.

At the same conference, Dr. Lars Sekse of Norway reported that the respiration rate of the stem was substantially higher than the cherry. The respiration rate of the stem alone was 751 mg of CO_2/kg of fruit/hr whereas fruit without stems respired at the rate of only 125 mg of CO_2/kg of fruit/hr. This may explain why the stem tends to turn brown long before the fruit deteriorates. At the 2001 ISHS Cherry Symposium Dr. Gene Kupferman stated, "Everything is less important than temperature".

OREGON STATE UNIVERSITY

Wasco County Extension
400 E. Scenic Drive
Suite 2.278
The Dalles, OR 97058

Phone: 541-296-5494
Fax: 541-298-3574
Email: lynn.long@oregonstate.edu

We're on the web!
http://oregonstate.edu/extension/wasco/

Overspray Hurting Industry

Every year I receive calls from irate individuals who were sprayed with pesticides as they drove by an orchard. This year is no different; I have received two of these calls already. These individuals are understandably upset that they and their children have been sprayed. In most cases they are looking to report the incident to some authority, such as the Oregon Department of Agriculture.

I typically handle these incidents by assuring the individual that I will call the grower and let him know of the situation. In most cases the grower has no idea that this overspray onto the road is taking place. The overspray can usually be traced back to poor spray technique by the applicator.

Shutting off nozzles on outside rows and spraying only into the trees can usually solve this problem. Applicator education is the key to this all too common problem. Please remind your applicators to shut off nozzles on outside rows to avoid spraying roads, houses and other off-target sites.

Soil Workshop in The Dalles

A special Rhizosphere workshop led by Jill Clapperton, soil guru from Lethbridge, Alberta CANADA, begins at the Discovery Center in The Dalles, Monday, May 16, at 9:00am. Pre-registration is requested by calling the Wasco County Extension Service at 296-5494. There will be a $10 registration fee collected at the door.

The initial session will allow Clapperton and other regional experts to provide the background that will help land managers better understand the intricate relationships between soil quality conditions and tillage practices. Tuesday, May 17th, Clapperton will lead a caravan for an up-close view of conditions in the local production area, including Mel Omeg's orchard at the Cemetery block, an undisturbed site and several different sites featuring different field practices on wheat ground.