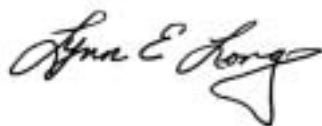


HORT UPDATE

Volume 17 Issue 2

May 2004



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Pre-Harvest Tour scheduled for June 3

The Wasco County Pre-Harvest Cherry Tour will be held Thursday, June 3 beginning at 8:00 AM at Orchard View Farms (OVF) in The Dalles. To get to OVF take “West The Dalles” exit off of I-84. Travel to 6th and Webber Street. Travel east on 6th Street to Cherry Heights Road and turn south. Turn east on 10th Street to Mt. Hood Street and turn south. Turn left on Skyline Road travel about 1 mile. Skyline Road curves to the right, Olney Road continues straight. Be sure to stay on Skyline Road all the way to Orchard View Farms. You will see the sign and the orchard on the right.

IFP certification, new cherry rootstocks, soil moisture monitoring techniques and an equipment show will be highlighted in The Dalles. The tour will finish up in the afternoon at the Mid-Columbia Agricultural Research and Extension Center in Hood River. Dr. Roberto Núñez-Elisea will highlight his work on ground covers, tunnels that are intended to delay production and a look at a block that is being converted from steep leader to Spanish Bush (KGB). See the enclosed agenda for further details.

GF-120, A New Cherry Fruit Fly Bait

A new method to control cherry fruit fly shows a lot of promise, according to Tim Smith, WSU Extension Agent, who spoke at a recent Orchard Manager’s Meeting in The Dalles. Smith was able to dramatically reduce and/or eliminate heavy infestations of cherry fruit fly. In 2002 he trapped 90, 15, 60 and 14 flies in four separate trials. After using the GF-120 bait in 2003 the percent fruit infestation was found to be 0.14, 0, 0, 0, respectively.

GF-120 is made up of a molasses bait that attracts the fly. Mixed with spinosad, it kills the insect upon consumption. GF-120 is an organic compound that is extremely safe to beneficial insects and has very low mammalian toxicity. I believe that GF-120 will be most useful in sensitive areas near housing developments, schools, churches and where malathion and other chemicals are restricted due to the court ruling that establishes pesticide no-use buffer zones in areas adjacent to certain streams, rivers, lakes, estuaries, and other water bodies, that support federally listed threatened and endangered Pacific salmon and steelhead. Generally, the buffers established by the court are 20 yards for ground application and 100 yards for aerial application, adjacent to certain “salmon-supporting waters” in Washington, Oregon, and California. However, there are variations and exceptions to this general buffer, which EPA has explained on its Web site at www.epa.gov/espp. Unlike malathion, there are no restrictions for the use of GF-120 in these buffer zones.

GF-120, A New Cherry Fruit Fly Bait...continued

The bait can be applied by all terrain vehicle (ATV) or by air. Apply at the rate of 20 oz. of product per acre. Apply 0.8 to 1.0 gallon per acre with a D3 nozzle. It should be thoroughly mixed with water prior to adding it to the tank. Filters and screens should be removed on the tank and nozzles due to fine filaments that can clog the system. For ground application, Wheatacres Irrigation in The Dalles is building a sprayer that attaches to an ATV.



If you are transitioning a block from aerial malathion to GF-120 be sure that you scout the area around the block for volunteer cherry trees. These trees have probably been sprayed in the past by airplane, but will now go unprotected. Volunteer trees should be removed so that they cannot re-grow.

Applications should be made at 10-12 mph. The ATV should have a speedometer to aid in the calibration process. All outside rows should be sprayed, but alternate rows should be sprayed after that. This means that all rows are sprayed on one side. With this system, application time is 2 to 2 ½ minutes per acre. There is a 0 day PHI and 4 hour re-entry interval. Applications should be made every 7 days. If it rains, reapplication should be made.

As mentioned, GF-120 also has an aerial label. Smith mentioned that aerial applicators in the Wenatchee area are equipping their helicopters with two tanks so that growers that don't want to apply GF-120 by ground have a second option. One tank is filled with malathion and the other with GF-120. The pilot sprays malathion to within 100 yards of the water and then switches tanks to apply the GF-120.

Caution needs to be taken when using phenoxy herbicides

Grapevines are extremely sensitive to herbicides containing phenoxy-type active ingredients, including 2,4-D, according to Ray William, horticulturist with the Oregon State University Extension Service. Damage can inadvertently occur when phenoxy herbicides drift from the target, either by shifting air currents, or by spraying at high pressure. When drifting herbicides come in contact with grapevines they can distort growth and may prevent maturation.

Even small amounts can cause problems. Slight winds can carry small spray droplets or volatilized molecules toward non-target plants. Movement of air on cold mornings during temperature inversions can settle cold air in low spots and can carry the molecules toward sensitive plants.

Ester formulations are much more volatile than salt formulations, and therefore more prone to drift. High temperatures can cause the ester-based chemical to evaporate from leaf surface even days after treatment.

In grapes, flower clusters are particularly sensitive. In a typical year, this means that the use of phenoxy

herbicides in cherries should be suspended after **April 10** in **The Dalles** area and **April 20** near **Dufur**. Exposure during bloom can greatly reduce fruit set. Ripening can also be delayed. Severe injury from these herbicides can prevent maturation of the fruit that can last for up to three years.

In grapes, symptoms of phenoxy herbicide damage are most dramatic on the youngest leaves and the tips of growing shoots. Symptoms include small, narrow and misshapen leaves that have closely packed, thick veins that lack chlorophyll.

Further down the shoot, damage symptoms are progressively less severe. Leaves may have a distinctive fan-shape appearance with parallel, strap-like, clear veins. The leaves are sometimes cupped and the leaf margins often terminate in sharp points. Small puckered spots between the veins retain some green chlorophyll.

To reduce the risk of phenoxy damage, consider using an herbicide with a different active ingredient, such as glyphosate. Use phenoxy herbicides only in early spring before grapevines begin to grow.

Methyl bromide use extended

The use of methyl bromide in the United States and other developed countries was extended at least through the end of 2005. Originally, phase out of methyl bromide was scheduled for January 1, 2005.

Representatives from eleven developed nations testified that there was not as yet a viable alternative for methyl bromide. The change was made to give farmers and other users an opportunity to consider alternatives.

The United States at 9,857 tons is by far the largest user of this product. Usage for other developed countries are much less with Australia at 160 tons, Belgium at 52 tons, Canada uses 62 tons, France 449 tons, Greece 205 tons, Italy 2,351 tons, Japan 313 tons, Portugal 55 tons, Spain 1,167 tons and Britain 142 tons. The U.S. has agreed to limit its 2005 production levels to 7,659 tons.

Fruit & Produce League receives award

The Wasco County Fruit and Produce League was selected as one of the 2004 Oregon Child Development Coalition, Community Partner Harvest of Hope Award recipients.

Nominations for the award were taken from OCDC staff and/or parents from around the state. A selection committee comprised of representatives from OCDC

parents, the OCDC board, County Directors, Specialists, and Executive Management Team reviewed the nominations and selected the Wasco County Fruit & Produce League as one of the recipients.

Ken Bailey and Kay Ericksen received the award on behalf of the League at a ceremony in Portland on April 5.

Small Grants Available for Conservation

Wasco County Soil and Water Conservation District has funds available for grants of up to \$10,000 for conservation projects that save soil or water or improve wildlife habitat. Cost-share rates vary from 50% to 75%, depending on the amount requested. Grants are competitive and are considered by a local panel every month. Interested parties should contact Jennifer Clark at Wasco County SWCD at (541) 296-6178 x119.



2003 Wasco County Sweet Cherry Production Results

2003 Wasco County Sweet Cherry Production and Value to Grower

Crop	Tons	Total Crop Value	(Return to Grower) Value/Lb.	% of Crop Tonnage
Fresh Cherries	11,714	\$ 21,048,001	\$0.90	50.74%
Brine Cherries	6,726	\$ 5,246,397	\$0.39	29.13%
Canned Cherries	953	\$ 903,940	\$0.47	4.13%
Freezer Cherries	2,505	\$ 2,146,503	\$0.43	10.85%
Culls	1,189	\$ 138,443	\$0.06	5.15%
Total	23,086	\$ 29,483,283	\$0.64	

Wasco County Five-Year Average Production and Value: 1999 - 2003

Crop	Tons	Total Crop Value	(Return to Grower) Value/Lb.	% of Crop Tonnage
Fresh Cherries	11,759	\$ 16,259,534	\$0.69	51.29%
Brine Cherries	7,191	\$ 4,656,414	\$0.32	31.36%
Canned Cherries	1,191	\$ 989,908	\$0.42	5.19%
Freezer Cherries	2,787	\$ 1,533,480	\$0.28	12.15%
Total	22,927	\$ 23,439,337	\$0.51	

Wasco County Five-Year Average Production and Value: 1999 - 2003

Variety	Tons	(Return to Grower) Value/Lb	% of Crop Tonnage
Bing	10,509.70	\$ 0.72	79.09%
Lambert	214.21	\$ 0.56	1.61%
Chelan	50.02	\$ 0.81	0.38%
Rainier	421.52	\$ 1.49	3.17%
Lapins	1,519.09	\$ 1.06	11.43%
Skeena	2.59	\$ 0.80	0.02%
Regina	38.45	\$ 0.99	0.29%
Sweetheart	482.24	\$ 1.20	3.63%
Others	50.40	\$ 0.83	0.38%

Stewardship of Powdery Mildew Fungicides in Perennial Crops

Gary Grove¹, Mark Nelson¹, and Chang-Lin Xiao²

Washington State University Irrigated Agriculture Research and Extension Center¹,
Prosser, WA and Tree Fruit Research and Extension Center, Wenatchee, WA²

Apples, apricots, cherries, grapes, hops, peaches and nectarines are plagued by the disease powdery mildew in the Pacific Northwest. With the recent advent of strobilurin and quinoline fungicides, further development and registration of members of the DMI (sterol-inhibitor) fungicide class, and the utilization of narrow range petroleum oils, growers currently have a wide variety of chemical management tools at their disposal (Table 1). While many of these new tools are highly effective, many of the most valuable fungicides carry an inherent risk of resistance problems. It has been known for some time that resistance to DMI fungicides (Ypema et al, 1997) has developed in some crops, but resistance to strobilurins has only recently become a commercial problem in grapes (Wilcox et al, 2003). Resistance to quinoline fungicides has been documented on cereals in Europe (Hollomon et al, 1999). At risk are the DMI (Rally, Rubigan, Procure, Elite, Orbit, and Bayleton), strobilurin (Abound, Cabrio, Flint, Pristine, and Sovran), and to a somewhat lesser extent quinoline (Quintec) fungicide classes. Resistance develops differently in the former two classes. Resistance to DMI fungicides manifests itself as a gradual loss of control as the disease-causing fungi become more tolerant to the fungicides. Compounds typically perform brilliantly when first released, and then over a period of years slowly deteriorate in efficacy. As a result, growers must apply the compounds at higher rates and/or tighter spray intervals in order to maintain control. Conversely, resistance to strobilurin fungicides is “all or none”. Strobilurin compounds may perform brilliantly for a period of time, and then fail miserably. For example, a strobilurin fungicide may be effective during the current season but not during the subsequent season.

Agriculture cannot afford to lose these new, recently registered fungicides. Powdery mildew is the most important disease in sweet cherries. The DMI, strobilurin, and quinoline fungicide classes comprise our first line of defense against these diseases. The risk of resistance to DMI and strobilurin fungicides is considered to be high. The mechanism of resistance to quinolines is not fully understood, but the resistance risk is currently considered low to moderate (Hollomon et. al, 1999). Add to this the fact that very few new powdery mildew fungicides are currently in the

development “pipeline”, it becomes readily apparent that sustained profitability of our sweet cherry industry depends on the immediate application of fungicide resistant management strategies. We cannot afford to lose the old- and new DMI, strobilurin, and quinoline fungicides.

What can the grower do? *Diversity* (Figure 1) and *moderation* in the fungicide program are keys to product preservation. Diversity and moderation mean

- 1) the use of multiple fungicide modes of action and moderation means
- 2) the use the resistance prone DMI, strobilurins, and quinoline fungicides in a rational manner, respectively. It is important to limit the total number of applications of high-risk compounds per season and to limit the number of sequential applications of any single mode of action.

In general, DMI resistance can be managed by limiting the number of applications to no more than 3 per season and no more than 2 sequential applications, tank mixing with other modes of action (oils, sulfur, carbonates), and by application at maximum labeled rates. Resistance to strobilurins can be managed by limiting the number of strobilurin applications per season (no more than 3 per season and no more than 2 sequential applications), use in single or block application in alternation with fungicides from a different group and use early in the season before powdery mildew is well established.

Do not alternate strobilurin products as cross-resistance has been documented in the fungicide class. Good spray coverage is essential.

The most important concept to appreciate with regard to fungicide resistance management is that only a very small percentage of individuals in a pathogen population have the potential for resistance to any given fungicide mode of action. The objective of resistance management are to reduce the populations of pathogens exposed to a given mode of action as well as reduce the duration and frequency of that exposure, thereby reducing the opportunity for those few individuals with resistance potential to become predominant in the population.

Stewardship of Powdery Mildew Fungicides ... continued

ALWAYS READ THE PESTICIDE LABEL AND FOLLOW RESISTANCE MANAGEMENT GUIDELINES!

Table 1. Some fungicide choices for cherry powdery mildew management, 2004.

Gary Grove, WSU IAREC

Class ¹	Trade Name	Common Name	Mildew Efficacy	Resistance Risk	Best Used As A.....
DMI (triazole)	Rally	Myclobutanil	Good	High	Protectant
DMI (pyrimidine)	Rubigan	Fenarimol	Fair	High	Protectant
DMI (triazole)	Elite	Tebuconazole	Good	High	Protectant
DMI (triazole)	Orbit	Propiconazole	Good	High	Protectant
DMI (imidazole)	Procure	Triflumizole	Good	High	Protectant
Strobilurin	Abound	Azoxystrobin	Fair	High	Protectant
Strobilurin	Flint	Trifloxystrobin	Excellent	High	Protectant
Strobilurin/anilide	Pristine	Pyraclostrobin/ boscalid	Excellent	High	Protectant
Strobilurin	Cabrio	pyraclostrobin	Excellent	High	Protectant
Quinoline	Quintec	Quinoxifen	Excellent	Moderate—?	Protectant
Horticultural mineral oil, petroleum spray oil, narrow range petroleum oil	JMS Stylet Oil		Excellent	Low	Protectant/ Eradicant
Sulfur	Microthiol	Flowable sulfur	Good	Low	Protectant
Carbonates	Armcarb or Kaligreen	Potassium bicarbonate		Low	Eradicant
Biological	Serenade	Bacillus subtilis		Low	Protectant
	AuxiGro	glutamic acid		Low	Protectant

¹DO NOT ALTERNATE: DMI's with DMI's and strobilurins with strobilurins

²Compounds in shaded cells are organic

³Other narrow-range oils will perform in a similar fashion, but may not be organic

References

Hollomon, D.W., Wheeler, I., Dixon, K., Longhurst, C., and Skylakakis, G. 1999. Defining the resistance of the new powdery mildew fungicide quinoxifen. *Pesticide Science* 51(3): 347-351.

Wilcox, W.F., Burr, J.A., and Riegel, D.G. 2003. Practical resistance to Qol fungicides in New York populations of *Uncinula necator* associated with quantitative shifts in pathogen sensitivities. *Phytopathology* 93:S90.

Ypema, H.L., Ypema, M., and Gubler, W.D. 1997. Sensitivity of *Uncinula necator* to benomyl, triadimefon, myclobutanil, and fenarimol in California. *Plant Dis.* 81:293-297.



Early signs of foliar powdery mildew

Stewardship of Powdery Mildew Fungicides ... continued

The bottom line for the grower or consultant:

- utilize cultural practices to reduce pathogen populations whenever possible. For example, delaying the initial irrigation of cherries early in the spring may help to delay the onset of powdery mildew epidemics. Limiting grapevine vigor reduces powdery mildew pressure in vineyards.
- use (either as alternations or tank mixes) as many fungicide modes of action (classes) as possible in the disease management program.
- use fungicides *protectively* before powdery mildew has become a problem.
- do not use resistance-prone compounds to attempt to get a powdery mildew epidemic under control. Narrow range petroleum oils and carbonates are the best eradivative fungicides.
- limit the number of applications of resistance-prone fungicide classes to no more than 3 per growing season.
- adjust spray volume per acre based on the size and volume of the crop to attain excellent spray coverage.
- apply fungicides at rates specified on the fungicide label (do not reduce rates).
- avoid making more than 2 consecutive applications of DMI, quinoline, or strobilurin fungicides
- include low resistance risk compounds (sulfurs, carbonates, and petroleum spray oils) in the spray program as much and whenever possible.
- apply fungicides during good conditions for spraying

OSU Extension Service Willamette Valley Stone Fruit Tour

Tuesday, June 1, 2004 from 1:30 to 5:00

OSU Lewis-Brown Farm in Corvallis

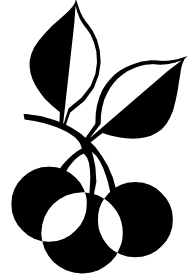
Tour Topic Areas

- Blush cherry selections for brine and fresh market
- Dark cherry variety trial
- Cherry systems training trial with blush cherries - central leader, multiple leader and trellis
- Sweet cherry rootstock trial
- Reflective mulch for enhanced coloring in the blush cherries
- MxM rootstock trial for processing sweet cherries
- Horticultural techniques and tools for training and pruning sweet cherries
- Orchard alleyway management
- Soil biology and chemistry
- Alternative cherry fruit fly management techniques

Dr. Anita Azarenko will lead this tour at the Lewis-Brown Farm, which is located at 33329 Peoria Road, off of Highway 34 (the road that takes you from Corvallis out to Interstate 5). Other OSU resource people will help with the tour topics as well. There is no charge for the tour, and pre-registration is not required. The tour will be held on Tuesday, June 1st, rain or shine.

Pre-Harvest Tour

Thursday, June 3, 2004



Stop #1 Orchard View Farms, 4055 Skyline Rd.

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

8:15 a.m.

- The EurepGap (IFP) certification process by Orchard View Farms
- The Oregon Dept. of Agriculture, Wasco County IFP & Good Ag Practices Certification process
- Crop Security Program

Stop #2 Dave Meyer Orchard, 3755 Skyline Rd.

- Alternative Cherry Rootstocks: Krymsk 5 and 6 (from Russia), Gisela 6 with Lapins as a central leader tree, Maxma 14, Weiroot 158, Pontaleb

Stop #3 Mel Omeg's Cemetery Block, Three Mile Road

- Soil Moisture monitoring devices

Sweetheart/Gisela 6. The KGB version of Spanish Bush and Central Leader training.

Stop #4 Dave Cooper Orchard, 2270 Dry Hollow Road

- No host lunch catered by Casa El Mirador (\$7.50)
- OCDC, La Clinica, OR Department of Employment reports
- Wasco County Fruit & Produce League Report
- OSCC Report
- Crop Estimate
- Equipment Show

AccuTech Tower Sprayer verses conventional air-blast sprayer

GF-120 Sprayer technology

Rears Tower Sprayer

Enviromist Strip Sprayer

Stop #5 Mid-Columbia Ag Research & Extension Center

3005 Experiment Station Drive, Hood River

- Regina IFP Block
- Ground cover effects on tree growth and production
- Tunnels to delay production
- Converting a steep leader orchard to a Spanish Bush (KGB)

Take "West The Dalles" exit off of I-84. Travel to 6th and Webber. Travel east on 6th Street to Cherry Heights Rd. and turn south. Turn east on 10th Street to Mt. Hood St. and turn south. Turn left on Skyline Rd. travel about 1 mile. Skyline Rd. curves to the right, Olney Rd. continues straight. Be sure to stay on Skyline Rd. all the way to Orchard View Farms. You will see the sign and the orchard on the right.