

# Cherry

## 2008 Pest Management Guide for the Willamette Valley

EM 8329-E  
 Revised January 2008

The chemicals, formulations, and rates listed for insect, mite, and disease control are among the best recommendations based on label directions, research, and orchard use experience. Only a thorough knowledge of the orchard, its variety, tree size and density, canopy characteristics, pest complex, and past pest problems will enable you to correctly select chemicals, rates, amount of water used per acre, and method of application for optimum pest control. Occasionally, different formulations of a product or like formulations containing a different amount of active ingredient also are registered and effective for use on the pests listed. These products also may be used; we do not intend to discriminate against them. You may wish to consult their labels and determine whether their use confers advantages over the products listed in this guide.

Always refer to the pesticide label for use instructions. It is the legal document regarding use patterns. Two questions frequently are asked about the chemical control of insects and diseases: “How much chemical do I use per acre?” and “What is the least amount of water I need per acre to apply in my concentrate sprayer?” Notice that the schedule below suggests an amount of formulated product (not active ingredient) to use per acre. This amount is based on a “typical” middle age and density orchard with moderate pest pressure. Common sense indicates that less material may be needed (than that given) for 1- to 4-year-old orchards. Conversely, more chemical (within label limits) may be required for large, mature trees experiencing heavy pest pressure from multiple pests.

Many insecticide labels today indicate the minimum amount of water needed per acre to apply concentrate sprays of insecticides, as well as how to calculate the amount of chemical needed per acre in a concentrate sprayer. **CHECK LABEL BEFORE SPRAYING!!** Some label directions indicate dilute applications only, such as the dimethoate labels for cherry fruit fly control.

Also:

1. Make sure any tank mixes of pesticides are compatible. For example, the elevated pH of some boron spray solutions weakens many insecticides.
2. Use adjuvants and spreader stickers with caution.
3. Heavy, brief rain or extended rainfall (0.75 inch for more than 24 hours) can remove pesticides from fruit and foliage. Reapplication may be necessary (within label limits).

### Important information for 2008

1. Be aware of worker protection standards (WPS). All new pesticide labels will provide orchard reentry intervals and personal protection equipment information.
2. Diazinon is now classified as a restricted use pesticide due to bird toxicity. Maximum per-acre application rates have been reduced to 4 lb 50W, and the preharvest interval extended to 21 days.

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*Use only one material except where a combination is indicated. Follow label precautions when tank-mixing oils, fungicides, and insecticides. Materials not listed in order of preference.*

## Stages

Dormant season (stage 0)  
 Dormant and delayed dormant (stages 0-1)  
 Popcorn stage (stages 2-5)  
 Full bloom (stages 6-7)

### Not shown

Petal fall  
 Shuck split  
 Two weeks after shuck fall  
 Late spring and summer  
 Postharvest

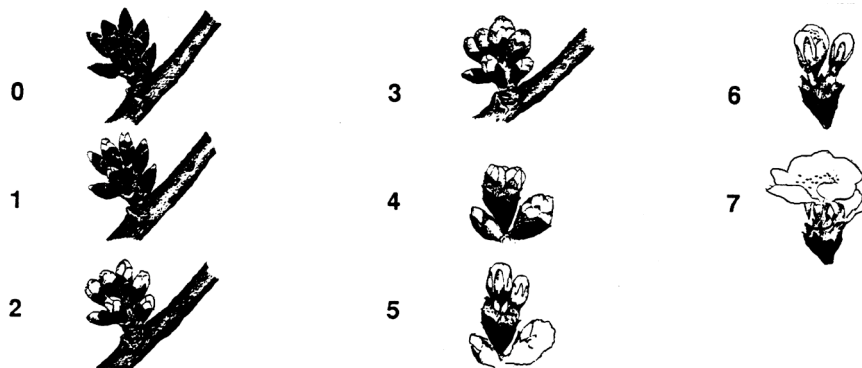


Illustration courtesy of Washington State University Cooperative Extension

## Cherry Pest Control Recommendations

Use only one material except where a combination is indicated. Follow label precautions when tank-mixing oils, fungicides, and insecticides. Materials are not listed in order of preference. Copper-based products alone have not worked well under conditions favorable for bacterial canker development.

### Dormant Season (October and January—Stage 0)

Pest or disease/ Material	Amount of product per acre	Comments/Reentry interval/Preharvest interval (PHI)
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#### Dead bud, bacterial canker, and shothole

*Note:* Apply the first spray in October before the fall rains and again in early January. Do not graze sheep in orchards sprayed with coppers. Copper-based products alone have not worked well under conditions favorable for bacterial canker development.

bordeaux 12-12-100	See footnote 1.	—
C-O-C-S WDG	8-12 lb	24-hour reentry.
Copper-Count-N	6 qt/100 gal water	12-hour reentry.
Cuprofix Disperss	12-16 lb	24-hour reentry.
Kocide 2000	6-9 lb	24-hour reentry.
Nordox 75	5-13 lb	24-hour reentry.
Nu-Cop 50DF	8-12 lb	Add 1 pt horticultural mineral oil (HMO) per 100 gal water. 24-hour reentry

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## Dormant and Delayed Dormant (Stages 0-1—before buds open and before eggs hatch)

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Pest or disease/ Material	Amount of product per acre	Comments/Reentry interval/Preharvest interval (PHI)
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### Scale insects, mite eggs, aphids, eggs and larvae of certain leafrollers, peach twig borer, and bud moth

*Note:* When using a WP formulation with oil, fill sprayer tank one-third full with water, turn on agitator, slowly add the WP, fill tank one-half full with more water, add oil. Keep agitator running, finish filling. Thorough coverage is essential. Dilute sprays recommended during this stage. Liquid formulations mix best with oil and water.

horticultural mineral oil (HMO) + an insecticide registered for these pests, such as:

diazinon 50WP	4 lb	—
Esteem 35WP	4-5 oz	Do not exceed 3 applications per year. <b>14-day PHI.</b>
Lorsban 4E	4 pt	4-day reentry.
Supracide 2E	3-12 pt	Supracide may be used without oil for San Jose scale control. 2- to 14-day reentry.

### Shothole borer (See footnote 4)

*Note:* Make first application in late February or March when overwintering adults first emerge. Spot treat infestations within orchard. Apply to infested trunk and limbs until runoff.

endosulfan 50WP	—	See footnote 4.
Lorsban 4E as above	4 lb	Do not use Lorsban on sweet cherries after bud break. Use only on sour cherries. 4-day reentry.

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## Popcorn Stage (Stages 2-5—blossom buds white just before opening)

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Pest or disease/ Material	Amount of product per acre	Comments/Reentry interval/Preharvest interval (PHI)
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### Brown rot blossom blight (see footnote 3)

Abound	12-15.5 fl oz	See footnote 6. 4-hour reentry. <b>0-day PHI.</b>
Bravo Weather Stik	3-4.1 pt	Do not apply later than shuck split. 12-hour reentry.
Cabrio EG	9.5 oz	12-hour reentry. <b>0-day PHI.</b>
Captan 80WDG	1.9-2.5 lb	24-hour reentry.
CaptEstate 68WDG	3.75 lb	Do not apply more than 2 consecutive applications (Captan + Elevate). 24-hour reentry. <b>0-day PHI.</b>
Elevate 50WDG	1-1.5 lb	12-hour reentry. <b>0-day PHI.</b>
Elite 45DF	4-8 oz	12-hour reentry. <b>0-day PHI.</b>
Indar 75WSP	2 oz	12-hour reentry. <b>0-day PHI.</b>
Orbit	4 oz	24-hour reentry. <b>0-day PHI.</b>
Orius 45DF	4-8 oz	12-hour reentry. <b>0-day PHI.</b>
Pristine	10.5-14.5 oz	Combination of two chemicals. 12-hour reentry. See footnote 6. <b>0-day PHI.</b>
Procure	10-16 fl oz	12-hour reentry. <b>1-day PHI.</b>
Quilt	14 fl oz	Abound + Orbit. 12-hour reentry. See footnote 6. <b>0-day PHI.</b>
Rally 40W	2.5-6 oz	24-hour reentry.
Rovral 4F	1-2 pt	Do not make more than 2 applications per season. Do not use past shuck split. See footnote 3. 24-hour reentry.
Tilt	4 fl oz	12-hour reentry. <b>0-day PHI.</b>
Topsin 4.5FL	20-30 oz	Tank-mix with another fungicide. <b>1-day PHI.</b>
Ziram 76DF	6 lb	Do not apply after first cover, 48-hour reentry. <b>30-day PHI.</b>

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*Use only one material except where a combination is indicated. Follow label precautions when tank-mixing oils, fungicides, and insecticides. Materials not listed in order of preference.*

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**Aphids, bud moth, leafrollers**

*Note:* Aphids usually are of concern only on young trees. If undesirable on mature trees, a spray 2 weeks after shuck fall is effective.

diazinon 50WP	4 lb	Limited to 1 application per season. Allow 5 days before introducing bees.
endosulfan 50WP	4 lb	Limited to 2 applications per season. Allow 1-3 days before introducing bees.

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**Syneta beetle (See footnote 5)**

*Note:* A local problem in certain Valley orchards. Adults may emerge and require control between early popcorn and petal fall. Place a beating tray or sheet under limbs and shake or tap branches to find beetles. Most damage is seen on pinhead and smaller size cherries. Insecticides should be applied no later than shuckfall if this prebloom application is not made.

azinphos-methyl (Guthion) 50WP Solupak	1.5 lb	Wait at least 5 days before introducing bees. <b>15-day PHI.</b>
endosulfan 50WP	4 lb	Do not use more than 6 lb/A per year nor make more than 2 applications per year. Wait at least 1-3 days before introducing bees. <b>21-day PHI.</b>
Imidan 70WP	1.3 lb	Imidan is the material of choice. Early popcorn is the time to treat if weather allows. A water-soluble bag formulation (70WSP) also is available. OR 24c for sweet cherries. Federal label for tart cherries. Wait at least 5 days before introducing bees. <b>7-day PHI.</b>

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**Full bloom (Stages 6-7)**

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<b>Pest or disease/ Material</b>	<b>Amount of product per acre</b>	<b>Comments/Reentry interval/Preharvest interval (PHI)</b>
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**Brown rot blossom blight (see footnote 3)**

Abound	12-15.5 fl oz	See footnote 6. 4-hour reentry. <b>0-day PHI.</b>
Bravo Weather Stik	3-4.1 pt	Do not apply later than shuck split. 12-hour reentry.
Cabrio EG	9.5 oz	12-hour reentry. <b>0-day PHI.</b>
Captan 80WDG	1.9-2.5 lb	24-hour reentry.
CaptEbate 68WDG	3.75 lb	Do not apply more than 2 consecutive applications (Captan + Elevate). 24-hour reentry. <b>0-day PHI.</b>
Elevate 50WDG	1-1.5 lb	12-hour reentry. <b>0 day PHI.</b>
Elite 45DF	4-8 oz	12-hour reentry. <b>0-day PHI.</b>
Indar 75WSP	2 oz	12-hour reentry. <b>0-day PHI.</b>
Orbit	4 oz	24-hour reentry.
Orius 45DF	4-8 oz	12-hour reentry. <b>0-day PHI.</b>
Pristine	10.5-14.5 oz	Combination of two chemicals. 12-hour reentry. See footnote 6. <b>0-day PHI.</b>
Procure	10-16 fl oz	12-hour reentry. <b>1-day PHI.</b>
Quilt	14 fl oz	Abound + Orbit. 12-hour reentry. See footnote 6. <b>0-day PHI.</b>
Rally 40W	2.5-6 oz	24-hour reentry.
Rovral 4F	1-2 pt	Do not use past shuck split. See footnote 3.
Tilt	4 fl oz	12-hour reentry. <b>0-day PHI.</b>
Topsin 4.5FL	20-30 oz	Tank-mix with another fungicide. See footnote 3. <b>1-day PHI.</b>
Ziram 76DF	6 lb	Do not apply after first cover. <b>30-day PHI.</b>

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**Petal Fall (75% petal fall)**

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<b>Pest or disease/ Material</b>	<b>Amount of product per acre</b>	<b>Comments/Reentry interval/Preharvest interval (PHI)</b>
<b>Brown rot blossom blight (see footnote 3)</b>		
Abound	12-15.5 fl oz	See footnote 6. 4-hour reentry. <b>0-day PHI.</b>
Bravo Weather Stik	3-4.1 pt	Do not apply later than shuck split. 12-hour reentry.
Cabrio EG	9.5 oz	12-hour reentry. <b>0-day PHI.</b>
Captan 80WDG	1.9-2.5 lb	24-hour reentry.
CaptEstate 68WDG	3.75 lb	Do not apply more than 2 consecutive applications (Captan + Elevate). 24-hour reentry. <b>0-day PHI.</b>
Elevate 50WDG	1-1.5 lb	12-hour reentry. <b>0 day PHI.</b>
Elite 45DF	4-8 oz	12-hour reentry. <b>0-day PHI.</b>
Indar 75WSP	2 oz	12-hour reentry. <b>0-day PHI.</b>
Orbit	4 oz	24-hour reentry. <b>0-day PHI.</b>
Orius 45DF	4-8 oz	Generic Elite (tebuconazol). 12-hour reentry. <b>0-day PHI.</b>
Pristine	10.5-14.5 oz	Combination of two chemicals. 12-hour reentry. See footnote 6. <b>0-day PHI.</b>
Procure	10-16 fl oz	12-hour reentry. <b>1-day PHI.</b>
Quilt	14 fl oz	Abound + Orbit. 12-hour reentry. See footnote 6. <b>0-day PHI.</b>
Rally 40W	2.5-6 oz	24-hour reentry.
Rovral 4F	1-2 pt	Do not use past shuck split. See footnote 3.
Tilt	4 fl oz	12-hour reentry. <b>0-day PHI.</b>
Topsin 4.5FL	20-30 oz	Tank-mix with another fungicide. See footnote 3. <b>1-day PHI.</b>
Ziram 76DF	6 lb	Do not apply after first cover. <b>30-day PHI.</b>
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<b>Leaf spot (see footnote 2)</b>		
Bravo Weather Stik	3-4.1 pt	Do not apply after shuck split. 12-hour reentry.
Captan 80WDG	1.9-2.5 lb	24-hour reentry.
Echo 720	3-4.1 pt	12-hour reentry.
Elite 45DF	4-8 oz	12-hour reentry. <b>0-day PHI.</b>
Gem	4-8 oz	Do not use with organosilicate surfactants. 12-hour reentry. <b>1-day PHI.</b>
Indar 75WSP	2 oz	12-hour reentry. <b>0-day PHI.</b>
Orbit	4 oz	24-hour reentry.
Orius 45DF	4-8 oz	12-hour reentry. <b>0-day PHI.</b>
Pristine	10.5-14.5 oz	12-hour reentry. See footnote 6. <b>0-day PHI.</b>
Procure	10-16 fl oz	12-hour reentry. <b>1-day PHI.</b>
Quilt	14 fl oz	Abound + Orbit. 12-hour reentry. See footnote 6. <b>0-day PHI.</b>
Rally 40W	2.5-6 oz	Has some curative (kickback) activity. <b>7-day PHI.</b>
Rubigan 1EC	6-12 oz	Do not apply more than 48 oz/A per season. <b>0-day PHI.</b>
Syllit FL	1-3 pt	48-hour reentry.
Tilt	4 fl oz	12-hour reentry. <b>0-day PHI.</b>
Ziram 76DF	6 lb	<b>30-day PHI.</b>

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**Aphids, bud moth, leafrollers**

*Note:* If this petal fall spray is used, spray only after bloom and after bees have been removed from orchard.

diazinon 50WP	4 lb	Limited to 1 application per season. <b>21-day PHI.</b>
endosulfan 50WP	4 lb	Do not exceed 6 lb/A per year. Do not apply more than twice per year. Use if not sprayed prebloom and syneta beetle is a problem. <b>21-day PHI.</b>
Success 2L	4-8 oz	Not effective on aphids. <b>7-day PHI.</b>

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**Syneta beetle**

*Note:* See popcorn stage for insecticides.

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**Shuck Split**

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<b>Pest or disease/ Material</b>	<b>Amount of product per acre</b>	<b>Comments/Reentry interval/Preharvest interval (PHI)</b>
<b>Leaf spot</b>		
Bravo Weather Stik	3-4.1 pt	Do not apply after shuck split. 12-hour reentry.
Captan 80WDG	1.9-2.5 lb	24-hour reentry.
Echo 720	3-4.1 pt	12-hour reentry.
Elite 45DF	4-8 oz	12-hour reentry. <b>0-day PHI.</b>
Gem	4-8 oz	Do not use with organosilicate surfactants. 12-hour reentry. <b>1-day PHI.</b>
Indar 75WSP	2 oz	12-hour reentry. <b>0-day PHI.</b>
Orbit	4 oz	24-hour reentry.
Orius 45DF	4-8 oz	12-hour reentry. <b>0-day PHI.</b>
Pristine	10.5-14.5 oz	12-hour reentry. See footnote 6. <b>0-day PHI.</b>
Procure	10-16 fl oz	12-hour reentry. <b>1-day PHI.</b>
Quilt	14 fl oz	Abound + Orbit. 12-hour reentry. See footnote 6. <b>0-day PHI.</b>
Rally 40W	2.5-6 oz	Has some curative (kickback) activity. <b>7-day PHI.</b>
Rubigan 1EC	6-12 oz	Do not apply more than 48 oz/A per season.
Syllit FL	1-3 pt	48-hour reentry.
Tilt	4 fl oz	12-hour reentry. <b>0-day PHI.</b>
Ziram 76DF	6 lb	<b>30-day PHI.</b>

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**Shothole (Coryneum blight)**

*Note:* See footnote 7.

Captan 80WDG	1.9-2.5 lb	24-hour reentry.
Echo 720	3-4.1 pt	12-hour reentry.
Ziram 76DF	6 lb	<b>30-day PHI.</b>

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## Two Weeks after Shuck Fall

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Pest or disease/ Material	Amount of product per acre	Comments/Reentry interval/Preharvest interval (PHI)
<b>Leaf spot</b>		
Captan 80WDG	1.9-2.5 lb	24-hour reentry.
Elite 45DF	4-8 oz	12-hour reentry. <b>0-day PHI.</b>
Gem	4-8 oz	Do not use with organosilicate surfactants. 12-hour reentry. <b>1-day PHI.</b>
Indar 75WSP	2 oz	12-hour reentry. <b>0-day PHI.</b>
Orbit	4 oz	24-hour reentry.
Orius 45DF	4-8 oz	12-hour reentry. <b>0-day PHI.</b>
Pristine	10.5-14.5 oz	12-hour reentry. See footnote 6. <b>0-day PHI.</b>
Procure	10-16 fl oz	12-hour reentry. <b>1-day PHI.</b>
Quilt	14 fl oz	Abound + Orbit. 12-hour reentry. See footnote 6. <b>0-day PHI.</b>
Rally 40W	2.5-6 oz	Has some curative (kickback) activity. <b>7-day PHI.</b>
Rubigan 1EC	6 oz	Do not apply more than 48 oz/A per season.
Syllit FL	1-3 pt	48-hour reentry.
Tilt	4 fl oz	12-hour reentry. <b>0-day PHI.</b>
Ziram 76DF	6 lb	<b>30-day PHI.</b>

### Aphids

*Note:* Aphids are of concern primarily in young orchards. Use this spray if the popcorn spray was not made and aphids are increasing.

diazinon 50WP	2-4 lb	Limited to 1 application per season. <b>21-day PHI.</b>
endosulfan 50WP	4 lb	Do not exceed 6 lb/A per year. Do not apply more than twice per year. <b>21-day PHI.</b>

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## Late Spring and Summer

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Pest or disease/ Material	Amount of product per acre	Comments/Reentry interval/Preharvest interval (PHI)
<b>Brown rot on fruit</b>		
<i>Note:</i> Apply materials prior to harvest before wet weather is expected. Pay close attention to preharvest spray restrictions.		
Abound	12-15.5 fl oz	See footnote 6. 4-hour reentry. <b>0-day PHI.</b>
Cabrio EG	9.5 oz	12-hour reentry. <b>0-day PHI.</b>
Captan 50WP	3-4 lb	4-day reentry.
CaptEstate 68WDG	3.75 lb	Do not apply more than 2 consecutive applications (Captan + Elevate). 24-hour reentry. <b>0-day PHI.</b>
Elevate 50WDG	1-1.5 lb	12-hour reentry. <b>0 day PHI.</b>
Elite 45DF	4-8 oz	12-hour reentry. <b>0-day PHI.</b>
Indar 75WSP	2 oz	12-hour reentry. <b>0-day PHI.</b>
Orbit	4 oz	24-hour reentry. <b>0-day PHI</b>
Orius 45DF	4-8 oz	12-hour reentry. <b>0-day PHI.</b>
Procure	10-16 fl oz	12-hour reentry. <b>1-day PHI.</b>
Quilt	14 fl oz	Abound + Orbit. 12-hour reentry. See footnote 6. <b>0-day PHI.</b>
sulfur, flowable (52%)	5 gal	Phytotoxicity when temperatures over 85°F. 24-hour reentry.
Tilt	4 fl oz	12-hour reentry. <b>0-day PHI.</b>
Topsin 4.5FL	20-30 fl oz	Tank-mix with another fungicide. See footnote 3. <b>1-day PHI.</b>

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**Bacterial canker, cherry witches broom**

none — Prune out cankers and dead limbs during dry weather.

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**Cherry fruit fly**

*Note:* First emergence can be in early May or as late as mid-June depending on location, elevation, weather, slope, and population pressure of an orchard. Growers should obtain emergence dates and base spray timing on local emergence information. SOUTH VALLEY: Douglas or Lane Co. Ext. offices. MID-VALLEY: Lane Co. Extension. NORTH VALLEY: Yamhill Co. Extension.

Many other insecticides are registered for cherry fruit fly control including azinphos-methyl (Guthion) and Asana.

Delegate WG	4.5-7 oz	Apply no less than 1 week apart, maximum 4 times per season. <b>7-day PHI.</b>
dimethoate 267	3-6 pt	<b>21-day PHI.</b>
dimethoate 400 or	0.5-2 pt	Do not mix dimethoate with Syllit. Thorough coverage is important.
dimethoate 4E	3-4 pt	Phytotoxicity can occur and varies from marginal leaf burn to defoliation. USE ONLY ONCE PER SEASON. <b>21-day PHI.</b>
malathion	see labels	Many formulations are available: WP, ULV, and EC. WPs may leave visible residues at harvest. Fyfanon ULV is produced by Cheminova. <b>1- to 3-day PHI.</b>
diazinon 50WP	4 lb	WPs may leave visible residues at harvest.
Entrust	1.25-2.5 oz	Organic formulation of spinosad. <b>14-day PHI.</b>
Imidan	2.33-2.5 lb	Sour cherries only. <b>7-day PHI.</b>
Provado 1.6F	4-8 oz	<b>7-day PHI.</b>
Sevin XLR Plus or	2-3 qt	<b>3-day PHI.</b>
Sevin 80WSP	3 lb	
spinosad bait (GF-120 NF)	20 oz	Apply every 7 days by air or all-terrain vehicle. Apply 0.8-1 gal/A with a D2 nozzle (without a core) attached to an ATV, at 6-7 mph.
Success 2L	4-8 oz	<b>7-day PHI.</b>

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**Shothole borer (see footnote 4)**

*Note:* Spot treat as needed. See delayed dormant stage.

endosulfan 50WP 1.5 lb/100 Do not exceed 6 lb/A per year or 2 times per year. **21-day PHI.**

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**Cherry slugs**

*Note:* Usually controlled with insecticides applied for control of other pests. Cherry slugs should be controlled on young trees during “establishment years.”

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**Fruit cracking**

hydrated lime 20-25 lb Thorough coverage of fruit is essential. Will reduce, not eliminate, cracking.

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**Postharvest****Pest or disease/  
Material****Amount of  
product per acre****Comments/Reentry interval/Preharvest interval (PHI)****Shothole borer (see footnote 4)**

endosulfan 50WP	1.5 lb/100 (4-5 lb/acre)	See late spring and summer use. Emergence of this third generation will be in Sept. or Oct.
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### Spider mites

*Note:* Spider mites seldom are a problem on cherries in the Willamette Valley except on young trees.

Acramite 50WS	0.75-1 lb	Use only once per season. <b>3-day PHI.</b>
Apollo 50SC	4-8 oz	Do not use more than once per season. <b>21-day PHI.</b>
Envidor 2SC	16-18 oz	<b>7-day PHI.</b>
Omite 30W	6 lb	Postharvest use only.
Onager 1EC	24 oz	Postharvest use only.
Savey DF	3-6 oz	Does not control rust mites. <b>28-day PHI.</b>
Vendex 50WP	1.5-2 lb	<b>14-day PHI if used preharvest.</b>

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### Increased fruit set

Solubor or Borosol	5-8 lb 2-4 qt	Late September or early October use with 60 gal or more of water. Don't mix boron sprays with pesticides. The elevated pH of the boron spray solution weakens many insecticides. Use this rate for foliar application.
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## Footnotes

1. Bacteria resistant to copper products have been detected in many Willamette Valley crops. Some growers report control of bacterial canker by the application of bordeaux 12-12-100 in October and January; others report little or no control. Thoroughly spray the trunks and lower scaffolds as well as the upper branches. Bordeaux 12-12-100 means 12 pounds of copper sulfate plus 12 pounds of hydrated lime in 100 gallons of water. In any bordeaux formula, the ingredients always are listed in the same order—copper sulfate, hydrated lime, then gallons of water.
  2. Young trees not being sprayed for brown rot may need an application of fungicide during bloom for adequate control of cherry leaf spot. This is more of a problem in high rainfall areas.
  3. Fungal pathogens have shown resistance to several fungicides when one is used exclusively. Alternate or tank-mix with fungicides with different modes of action. Fungicides from different groups have different modes of action. One or two applications during bloom may adequately control brown rot when products with systemic (translaminar) activity are used.
  4. Shothole borer can have three generations in Valley orchards. Look for new adults and/or sawdust pushed from emergence holes in late winter, June/July, and again in Sept/Oct. It prefers young and/or stressed trees. Control is difficult and consists of spot-treating infested trunks and limbs with a dilute spray when adults are emerging and reinvading. Thiodan (endosulfan), although not labeled for this pest, has given some control. It, however, has a 21-day PHI and should not be used within 3 weeks of harvest. Mix as a dilute spray at the rate of 1-1.5 lb 50WP per 100 gal water.
  5. Syneta beetle is a small, pale leaf- and fruit-feeding beetle that causes fruit scarring shortly after pollination through the time cherries are pinhead size. It is a localized problem in the Valley and within orchard blocks. Adults begin emerging and feeding in orchards before bloom or as late as early fruit set. First emergence has been as early as April 6 or as late as early May depending upon elevation and slope of individual blocks. Beetles may be present for 4-6 weeks in an orchard. Best time for control is PREBLOOM (popcorn) if beetles are present. Imidan (OR-24c) is the favored insecticide. Guthion (azinphos-methyl) also will give good control at this time *if* beetles are present. However, do not introduce bees for 5 days post spray of either insecticide because of possible residues and associated bee kills. Endosulfan 50WP (OR-24c) also will control Syneta and is not quite as hazardous to pollinators; but at the rate suggested for use, 3 days should pass prior to introducing bees. **DO NOT APPLY THESE INSECTICIDES TO TREES IN BLOOM!** Both ground emergence cages and “tap trays” for pear psylla monitoring are used to determine presence of Syneta.
  6. Alternate with another fungicide with a different mode of action. Do not use more than 2 sequential applications. Sprayers used for Abound should **not be used on apples** such as Gala, Cox's Orange Pippin, and McIntosh. Even a small amount of drift can severely impact these apple trees.
  7. Good information on the control of shothole in sweet cherry is lacking. Much of our information is derived for the same disease on peaches or almonds. Other materials also may be effective. Applications past shuck split may be needed in years when heavy spring rains continue past bloom.
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# Effectiveness of Fungicides and Bactericides for Control of Cherry Diseases\*

Fungicide	Fungicide group #	Properties**	Brown rot (blossom blight)	Brown rot (fruit rot)	Cherry leaf spot	Powdery mildew	Shothole	Pseudomonas bacterial canker
Abound	11	B, F, Ls, P	Good	Good	Good	Excellent***	Fair-good	Not effective
Botran	14	F, P	Fair	Fair	??	Not effective	??	Not effective
Bravo	M5	B, F, P	Good-fair	Not registered	Excellent	Not effective	Good	Not effective
Cabrio	11	B, F, Ls, P	Good	Good	Fair-good	Excellent***	??	Not effective
Captan	M4	B, F, P	Good	Good	Good	Not effective	Good-excellent	Not effective
CaptEstate	M4 +17	B, F, P	Good	Good	Good	Not effective	Good	Not effective
Copper-based products	M1	B, Bact, F, P	Slight	Not registered	Good	Slight	Good	Fair-excellent***
Echo 720	M5	B, F, P	Good-fair	Not registered	Excellent	Not effective	Good	Not effective
Elevate	17	F, N, P	Good-excellent	Good-excellent	??	Not effective	??	Not effective
Elite	3	B-N, C, F, Ls, P	Good-excellent	Good-excellent	Good	Good***	??	Not effective
Ferbam	M3	B, F, P	Fair	Not registered	Fair	Not effective	Good	Not effective
Gem	11	B, F, Ls, P	Fair-good	Fair-good	??	Excellent***	??	Not effective
Indar	3	B-N, C, F, Ls, P	Excellent***	Excellent***	Good-excellent	Slight***	??	Not effective
HMO	Not classified	E, F, I, P	??	??	??	Good-excellent	??	??
Kaligreen	Not classified	E, B-N	??	??	??	Poor	??	??
Orbit/Tilt	3	B-N, C, F, Ls, P	Excellent	Excellent	??	Good***	Slight	Not effective
Orius	3	B-N, C, F, Ls, P	Good-excellent	Good-excellent	Good	Excellent***	??	Not effective
Pristine	11 + 7	B-N, F, Ls, P	Good-excellent	Good-excellent	Good	Excellent**	??	Not effective
Procure	3	B-N, C, F, Ls, P	Good	??	Fair	Good***	??	Not effective
Quilt	11 + 3	B-N, C, F, Ls, P	Excellent	Excellent	??	Excellent***	Fair-good	Not effective
Quintec	13	N, F, P	None	None	None	Excellent	None	None
Rally	3	B-N, C, F, Ls, P	Good-fair	Good-fair	Excellent	Excellent***	Slight	Not effective
Rovral	2	B-N, F, Ls, P	Good***	Not registered	Slight	Not effective	Fair-good	Not effective
Rubigan	3	B-N, C, F, Ls, P	Not registered	Good	Excellent	Good-fair	??	Not effective
Sulfur	M2	F, I, P, V	Fair	Fair	Fair	Good	Not effective	Not effective
Syllit	M7	B, F, P	??	Slight	Good	Not effective	??	None-slight
Topsin	1	B, C, F, Ls	Good***	Good***	??	Good***	Not effective	Not effective
Ziram	M3	B, F, P	Slight	Slight	Fair	Not effective	Good-excellent	Not effective

\*These ratings are relative rankings based on labeled application rates, good spray coverage, and proper spray timing. Actual levels of disease control will be influenced by these factors in addition to cultivar susceptibility, disease pressure, and weather conditions.

\*\*Properties: B = Broad spectrum of activity; Bact = Bactericidal; B-N = Broad to narrow spectrum of activity; C = Curative, DMI = Demethylation-inhibiting; E = Eradicant; F = Fungicidal; Fs = Fungistatic; I = Insecticidal; Ls = Locally systemic; N = Narrow spectrum of activity; P = Protectant; V = Vapor active; ?? = Unknown.

\*\*\*Resistant pathogens will lower the effectiveness of these fungicides.

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# Twelve steps to manage bacterial canker of sweet cherry

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*Pseudomonas syringae*, which causes bacterial canker, is a major bacterial pathogen of young sweet cherry trees. Often, 10 to 20 percent of the trees in new orchards are killed by *P. syringae* within 5 years of planting. Control must integrate several techniques, including the following:

1. Do not interplant new trees with old trees, which are major sources of *P. syringae*.
2. Keep irrigation water off the part of the trees above ground as much as possible for the first 2 or 3 years after planting. Consider withholding water in late summer so trees will “harden off” and not be as susceptible to low temperature injury in early winter.
3. Avoid all types of injury—mechanical, insect, frost. Paint all trunks white with latex paint to prevent winter injury. Adding copper to the paint is probably of little benefit.
4. Some studies show less bacterial canker when pruning is delayed until spring, even as late as after flowering in May. Less disease also occurs when summer pruning is used. Prune only during dry weather if possible.
5. Remove branches and trees killed by *P. syringae* from the orchard and destroy them.
6. Mazzard F12-1 is one of the most resistant rootstocks. Resistance of new rootstocks is unknown at this time, but trees on Mazzard may have an advantage over trees on size-controlling rootstocks. Sweet cherry scion cultivars generally are susceptible.
7. Locate the orchard in an area less likely to be affected by frost and slow drying conditions.
8. Provide optimal soil conditions for growth of cherries, including attention to pH and nutrition. Application of excess nitrogen, especially late in the growing season, will promote late-season growth that is susceptible to low temperature injury in early winter, followed by bacterial infection.
9. Control weeds. They often support large populations of *P. syringae*, especially grasses. Clover and vetch ground covers support lower populations. Consider clean cultivation of row middles for the first 3 years.
10. Fixed copper products or Bordeaux 12-12-100, applied in October and January, may help, but strains of *P. syringae* resistant to copper are widespread in the Mid-Columbia area.
11. Test for and control plant pathogenic nematodes before planting if needed. High populations of ring nematode have been associated with more bacterial canker.
12. In the Parkdale area, plant trees in May rather than April.

## Cherry fruit fly control area order and Integrated Pest Management

The intent of this pest control area in Lane, Linn, Marion, Polk, and Yamhill counties is to protect the commercial cherry industry from the Western cherry fruit fly (CFF). The presence of just one maggot is sufficient to reject a lot of cherries delivered to the processor. Area-wide suppression of this pest is the most effective way to minimize its risk to the industry.

In recognition of the IPM act of 1991 as defined and mandated by ORS 634.655, whereby the Oregon Department of Agriculture is required to follow IPM principles in fulfilling its pest control responsibilities, the following: (1) addresses a source of information for obtaining and selecting elements of IPM that can be used successfully in tree fruit production in Oregon, and (2) provides acceptable cherry fruit fly management techniques that comply with the intent of OAR 603-52-150 to protect the commercial cherry industry within the control order zone.

Commercial cherry growers base CFF management on predicted emergence of overwintering adult flies from the soil using a degree-day model and/or the appearance of the first flies trapped in red sphere “sticky” traps within or near the orchard. Sometimes a “sentinel” tree or area known to be infested with CFF is used to determine first emergence with sticky traps. The most suitable insecticide for a given operation is selected from this guide and applied to the trees beginning no later than 7 days after CFF emergence.

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Depending upon the insecticide chosen, repeat applications may be necessary to ensure no maggots infest the fruit. Post-harvest insecticide applications often are necessary in commercial orchards because of fruits left on trees, the long flight period of CFF, and short residual nature of most insecticides used.

Tree height and canopy influence effectiveness of sprays. Shorter trees pruned to open canopy interiors allow for more effective coverage and penetration.

Evaluation of commercial CFF control programs is based on fruit inspections at receiving plants.

Noncommercial cherry trees should be managed in the same manner in regard to CFF control. General-use insecticides presented in this guide can be used and timed as above.

Methods other than insecticidal sprays that can be used are designed to prevent the presence of fruit when egg-laying flies are present. These include: (1) tree removal, (2) removal of all bloom from trees, and (3) removal and proper disposal of fruit before CFF emergence.

## OSU Internet resources for plant protection

Information regarding plant protection is available from several sources at OSU. The following listings are excellent examples:

- OSU Integrated Plant Protection Center. Online weather data and degree day information for insect pests and diseases (<http://ippc2.orst.edu/wea/index.html>)
- Codling moth development information (<http://ippc2.orst.edu/cgi-bin/ddmodel.pl?clm>)
- Apple scab infection season information (<http://ippc2.orst.edu/cgi-bin/ddmodel.pl?spp=asc>)
- Pear scab infection season information (<http://ippc2.orst.edu/cgi-bin/ddmodel.pl?spp=asp>)
- Pear scab infection period information for the Hood River Valley (<http://ippc2.orst.edu/hr/>)
- Fire blight risk information (<http://ippc2.orst.edu/cgi-bin/ddmodel.pl?fb1>)

Directions for the use of each model are available at each site.

- OSU Botany and Plant Pathology Department. Site of "Online Guide to Plant Disease Control." Disease symptom descriptions, pictures of disease symptoms, and other information helpful in plant protection (<http://ipmnet.org/plant-disease/>)
- Pacific Northwest Insect Management Handbook (<http://pnwpest.org/pnw/insects>)
- Pacific Northwest Weed Management Handbook (<http://pnwpest.org/pnw/weeds>)

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# Basic Elements of Safe Pesticide Use

- Always read the label with care. This is the first step in selecting the right material for the job. Never rely on your memory. Before opening the container, pay strict attention to warnings and cautions printed on the label.
- Keep all pesticide and spray materials out of the reach of children, pets, and irresponsible persons. Storage outside of the home, away from food and feed, and under lock and key is the safest method.
- Store only in the original container and keep tightly closed.
- NEVER smoke, eat, or drink while applying pesticides.
- Avoid inhalation or direct contact. Always wear protective clothing and safety devices as recommended on the label.
- Avoid spills. If spills occur, take immediate action to remove contaminated clothing and wash thoroughly.
- After each application, bathe and change to clean clothing. Wash clothing after each use. Always use fresh clothing when starting new application.
- Avoid contamination of fish ponds and water supplies. Cover feed and water containers when treating around livestock or pet areas.
- Keep separate equipment for use with hormone-type herbicides to avoid accidental injury to susceptible plants. Also avoid applications under wind conditions that could create drift to nontarget areas.
- Rinse empty containers three times before disposing of them. Add the rinse to the spray tank and dispose of containers according to local regulations to avoid hazard to humans, animals, and the environment.
- Follow label directions for mixing and application to keep residues within the limits prescribed by law.
- Plan ahead. Discuss with your physician the materials you will be using during the season so that he or she can be prepared to provide the appropriate treatment in case of accidental exposure. If symptoms of illness occur, call the physician or get the patient to a hospital immediately. Always provide the medical personnel with as much information as possible.
- Be cautious when you apply pesticides. Know your legal responsibility as a pesticide applicator. You may be liable for injury or damage resulting from pesticide use.

## Oregon Poison Center

The Oregon Health Sciences University

3181 S.W. Sam Jackson Park Road, Room CB 550

Portland, OR 97201

Phone: 503-494-8968; Oregon Toll Free: 1-800-452-7165; Nationwide: 1-800-222-1222

**If a person has collapsed or is not breathing, dial 911.**

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Prepared by Jeff Olsen, Extension horticulturist, Yamhill County, and Jay W. Pscheidt, Extension plant pathologist, Oregon State University. The information in this pest management guide is valid for 2008. The mention of commercial products in this publication does not constitute endorsement by the Oregon State University Extension Service, nor should exclusion be interpreted as criticism of any item, form, or service. Due to constantly changing laws and regulations, the Oregon State University Extension Service can assume no liability for the suggested use of chemicals contained in this guide. Pesticides should be applied according to the label directions on the pesticide container.

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