Oregon State University | Extension Service

Peach

2013 Pest Management Guide for Oregon

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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.

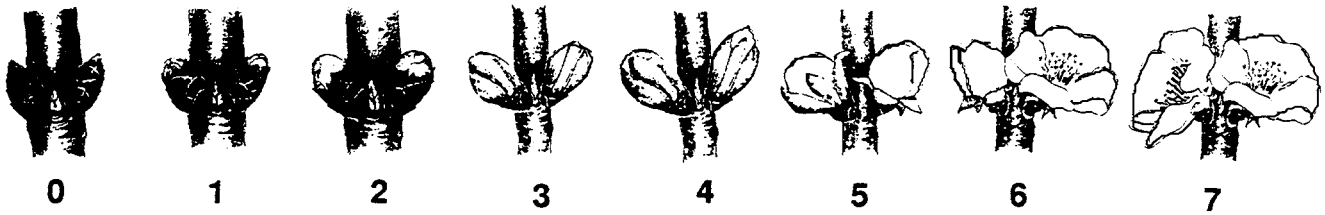
Also:

1. Don't mix boron sprays with pesticides. The elevated pH of the boron spray solution weakens many insecticides.
2. Make sure any tank-mixes of pesticides are compatible. For example, the elevated pH of some boron spray solutions weakens many insecticides.
3. Use adjuvants and spreader stickers with caution.
4. 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

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.
3. *Orchard Pest Management, a Resource Book for the Pacific Northwest*, 1993 (edited by Beers, Brunner, Willet, and Warner, published by the Good Fruit Grower, Yakima, WA) provides a comprehensive list of the tree fruit insect and mite pests of orchards. Life histories, damage, detection, monitoring, and management of the pests are covered. It is one of our primary sources of information in developing this pest management guide and the most complete reference on orchard use of the principles of integrated pest management.

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.



Stages

Dormant and Delayed Dormant (Stages 0, 1, and 2)
Prebloom (Stage 3)
Popcorn (Stages 4–5)
Full Bloom (Stage 7)

Not shown

Petal Fall; Shuck Split to Shuck Fall; Summer; Preharvest; Postharvest

Illustration courtesy of Washington State University Extension.

Peach 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.

Dormant and Delayed Dormant (Stages 0, 1, and 2—just before buds open and before eggs hatch)		
Pest or disease/ Material	**Amount of product per acre**	**Comments/Reentry interval/Preharvest interval (PHI)**
Cytospora canker	None	Remove and destroy dead cankered limbs.
Peach leaf curl and shothole *Note:* Apply first leaf curl spray when 50% of the leaves have fallen and again at delayed dormant in late February before floral buds begin to open. An additional spray may be needed during the dormant season for shothole control depending on material selected. The addition of a spreader sticker will increase the effectiveness of some of these leaf curl sprays. Even curl-resistant cultivars need protection during the first few years. East of the Cascades, in southern Oregon, and in low-rainfall areas, a delayed dormant application alone should be effective.		
bordeaux 12-12-100	—	—
Bravo Weather Stik	3–4 pt	Effective if used all dormant season long. Do not add a spreader sticker. 12-hour reentry.
BSP lime sulfur	32 gal	Is a very effective product for leaf curl only. 48-hour reentry.
Cuprofix	5–10 lb	Effective only on shothole if used during the dormant season. 48-hour reentry. Many other copper products are labeled, such as C-O-C-S, Copper-Count-N, and Nordox with different reentries.
Echo 720	3–4 pt	Effective if used all dormant season long. Do not add a spreader sticker. 12-hour reentry.
Ferbam Granuflo	4.5 lb	24-hour reentry.
Nu-Cop 50DF	8–16 lb	Effective only on shothole if used during the dormant season. Many other copper products are labeled, such as C-O-C-S, Copper-Count-N, and Nordox with different reentries.
Tetrasul 4s5	15 gal	Is a very effective product for leaf curl only. 48-hour reentry.
Ziram 76DF	6–8 lb	Is a very effective product for both leaf curl and shothole. 48-hour reentry.

Dormant and Delayed Dormant continues on next page

CONTINUED—Dormant and Delayed Dormant (Stages 0, 1, and 2—just before buds open and before eggs hatch)		
Pest or disease/ Material	**Amount of product per acre**	**Comments/Reentry interval/Preharvest interval (PHI)**
Scale, mite, and aphid eggs, peach twig borer		
Horticultural mineral oil (HMO) + one of the following:	4–6 gal	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.
diazinon 50WP	4 lb	Limited to 1 application per season.
Esteem 35WP	4–5 oz	**14-day PHI**.
Success 2L	4–8 oz	**1-day PHI** for peaches, **1-day PHI** for nectarines.
Prebloom (prepink) (Stage 3)		
Pest or disease/ Material	**Amount of product per acre**	**Comments/Reentry interval/Preharvest interval (PHI)**
Shothole borer *Note:* This pest has two and possibly three generations in the Willamette Valley.		
Popcorn (Stages 4–5—just before petals begin to open)		
Pest or disease/ Material	**Amount of product per acre**	**Comments/Reentry interval/Preharvest interval (PHI)**
Peach twig borer, leafrollers, aphids, eyespotted bud moth, stinkbugs *Note:* This is the most satisfactory time to apply green peach aphid-twig borer combination sprays. Asana, Pounce, and Ambush also are effective and registered for use but may cause spider mite problems.		
Peach twig borer, leafrollers, bud moth		
Bacillus thuringiensis	1–2 lb	Bt products are stomach poisons. Complete coverage and 2 to 3 sprays usually are required for satisfactory control. Follow the label rates for individual products. **0-day PHI**.
Delegate	3–7 oz	**1-day PHI**.
Silver or rust mites (if a problem)		
Nexter	10.67 oz	Do not exceed 2 applications per year. **7-day PHI**.
Vendex 50WP	1–2 lb	2-day reentry. Do not apply more than 1.5 lb ai/A per year. **14-day PHI**.
Thrips (see footnote 4, page 11)		

Popcorn continues on next page

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.

CONTINUED—Popcorn (Stages 4–5—just before petals begin to open)		
Pest or disease/ Material	**Amount of product per acre**	**Comments/Reentry interval/Preharvest interval (PHI)**
Brown rot blossom blight (see footnote 3, page 11)		
Abound	12–15.5 fl oz	See footnote 5, page 11. Do not use with silicone-based surfactants. 4-hour reentry. **0-day PHI**.
Adament 50WG	4–8 oz	Group 3 + 11 fungicide. 12-hour reentry. **1-day PHI**.
Bravo Weather Stik	3–4.1 pt	Do not apply after shuck split. 12-hour reentry.
Bumper 41.8EC	4 oz	12-hour reentry. **0-day PHI**.
Captan 80WDG	2.5–5 lb	24-hour reentry.
Elevate 50WDG	1–1.5 lb	12-hour reentry. **0-day PHI**.
Elite 45 WP	4–8 oz	12-hour reentry. **0-day PHI**.
Fontelis	14–20 fl oz	12-hour reentry. **0-day PHI**.
Indar 2F	6 fl oz	12-hour reentry. **0-day PHI**.
Inspire Super	16–20 fl oz	Group 3 + 9 fungicide. 12-hour reentry. **2-day PHI**.
Merivon	4–6.7 fl oz	Group 7 + 11 fungicide. Do not use with EC or oil-based products. Only nonionic surfactants can be used within 14 days of harvest. 12-hour reentry. **0-day PHI**.
Orius 20 AQ	8.6–17.2 oz	12-hour reentry. **0-day PHI**.
Pristine	10.5–14.5 oz	Group 7 + 11 fungicide. See footnote 5, page 11. 12-hour reentry. **0-day PHI**.
PropiMax EC	4 fl oz	12-hour reentry. **0-day PHI**.
Quadris Top	12–14 fl oz	Group 3 + 11 fungicide. See footnote 5, page 11. 12-hour reentry. **0-day PHI**.
Quash	2.5–4 oz	12-hour reentry. **14-day PHI**.
Quilt Xcel	14 fl oz	Group 3 + 11 fungicide. See footnote 5, page 11. 12-hour reentry. **0-day PHI**.
Rovral	1–2 pt	See footnote 3, page 11. 24-hour reentry.
Scala SC	9–18 fl oz	Do not apply more than 3 applications alone. **2-day PHI**.
Thiram Granuflo	3.5 lb	24-hour reentry. **7-day PHI**.
Tilt	4 oz	12-hour reentry. **0-day PHI**.
TopGuard	14 fl oz	Do not use with adjuvants. 12-hour reentry. **7-day PHI**.
Topsin 4.5FL	20–30 oz	Tank-mix with another fungicide. 2-day reentry. **1-day PHI**.
Vangard 75WG	5 oz	Do not apply more than 30 oz/A per season. Buffer to a pH of 5 to 7 if mixing with Rovral. 12-hour reentry.

Full Bloom (Stage 7)		
Pest or disease/ Material	**Amount of product per acre**	**Comments/Reentry interval/Preharvest interval (PHI)**
Brown rot blossom blight See materials listed for Popcorn Stage.		

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.

Petal Fall

Pest or disease/ Material	Amount of product per acre	Comments/Reentry interval/Preharvest interval (PHI)
Peach twig borer, leafrollers, oriental fruit moth, aphids *Note:* Make Petal Fall spray if Popcorn spray missed or if orchard was heavily infested the previous season.		
diazinon 50WP	4 lb	Limited to 1 application per season. **21-day PHI**.
Delegate	3–7 oz	**1-day PHI**.
Imidan 70WP	3.5–4.25 lb	**14-day PHI**.
Peach twig borer, leafrollers, bud moth		
Bacillus thuringiensis	1 lb	Bt products are stomach poisons. Complete coverage and 2 to 3 sprays usually are required for satisfactory control. **0-day PHI**.
Delegate	3–7 oz	**1-day PHI.**
Success 2L	4–8 oz	**1-day PHI.**
Stink bugs *Note:* Asana, Pounce, Ambush, and Guthion 50WP Solupak also are effective and registered for use but may cause spider mite problems.		
Green peach aphid		
Assail 70WP	1–2.3 oz	**7-day PHI**.
Provado 1.6F	4–8 oz	**0-day PHI**.
Thrips (see footnote 4, page 11)		
Brown rot blossom blight (for high rainfall areas) See materials listed for Popcorn Stage.		

Shuck Split to Shuck Fall

Pest or disease/ Material	Amount of product per acre	Comments/Reentry interval/Preharvest interval (PHI)
Shothole (Coryneum blight)		
Abound	11–15 fl oz	See footnote 5, page 11. Do not use with silicone-based surfactants. 4-hour reentry. **0-day PHI**.
Adament 50WG	4–8 oz	Group 3 + 11 fungicide. 12-hour reentry. **1-day PHI**.
Bravo Weather Stik	3–4 pt	Do not apply past shuck split. 12-hour reentry.
Captan 80WDG	5 lb	24-hour reentry.
Echo 720	3–4 pt	Do not apply past shuck split. 12-hour reentry.
Fontelis	14–20 fl oz	12-hour reentry. **0-day PHI**.
Gem 500SC	2.9–3.8 oz	12-hour reentry. **1-day PHI**.
Pristine	10.5–14.5 oz	Group 7 + 11 fungicide. See footnote 5, page 11. 12-hour reentry. **0-day PHI**.
Quilt Xcel	14 fl oz	Group 3 + 11 fungicide. See footnote 5, page 11. 12-hour reentry. **0-day PHI**.
Ziram 76DF	6 lb	**30-day PHI**.

Shuck Split to Shuck Fall continues on next page

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CONTINUED—Shuck Split to Shuck Fall		
Pest or disease/ Material	**Amount of product per acre**	**Comments/Reentry interval/Preharvest interval (PHI)**
Powdery mildew		
Abound	11–15.5 fl oz	See footnote 5, page 11. Do not use with silicone-based surfactants. 4-hour reentry. **0-day PHI**.
Adament 50WG	4–8 oz	Group 3 + 11 fungicide. 12-hour reentry. **1-day PHI**.
Bumper 41.8EC	4 oz	12-hour reentry. **0-day PHI**.
Cosavet	10–20 lb	80% sulfur. 24-hour reentry.
Elite 45 WP	4–8 oz	12-hour reentry. **0-day PHI**.
Fontelis	14–20 fl oz	12-hour reentry. **0-day PHI**.
Gem 500SC	1.9–3.8 oz	12-hour reentry. **1-day PHI**.
Indar 2F	6 fl oz	12-hour reentry. **0-day PHI**.
Inspire Super	16–20 fl oz	Group 3 + 9 fungicide. 12-hour reentry. **2-day PHI**.
Kumulus DF	10–30 lb	80% sulfur. 24-hour reentry.
Merivon	4–6.7 fl oz	Group 7 + 11 fungicide. Do not use with EC or oil-based products. Only nonionic surfactants can be used within 14 days of harvest. 12-hour reentry. **0-day PHI**.
Microthiol Disperss	10–20 lb	80% sulfur. Do not use a spreader sticker. 24-hour reentry.
Pristine	10.5–14.5 oz	Group 7 + 11 fungicide. See footnote 5, page 11. 12-hour reentry. **0-day PHI**.
PropiMax EC	4 fl oz	12-hour reentry. **0-day PHI**
Quadris Top	12–14 fl oz	Group 3 + 11 fungicide. See footnote 5, page 11. 12-hour reentry. **0-day PHI**.
Quash	3.5–4 oz	12-hour reentry. **14-day PHI**.
Quilt Xcel	14 fl oz	Group 3 + 11 fungicide. See footnote 5, page 11. 12-hour reentry. **0-day PHI**.
Quintec	7 fl oz	12-hour reentry. **7-day PHI**. See footnote 7, page 11.
Rally 40WSP	2.5–6 oz	24-hour reentry. **0-day PHI**.
Tilt	4 oz	12-hour reentry.
TopGuard	14 fl oz	Do not use with adjuvants. 12-hour reentry. **7-day PHI**.
Unicorn DF	2–3 lb	Group 3 + M2 fungicide. 24-hour reentry.

Summer		
Pest or disease/ Material	**Amount of product per acre**	**Comments/Reentry interval/Preharvest interval (PHI)**
Powdery mildew (if found before pit hardening; see footnote 6, page 11)		
Adament 50WG	4–8 oz	Group 3 + 11 fungicide. 12-hour reentry. **1-day PHI**.
Bumper 41.8EC	4 oz	12-hour reentry. **0-day PHI**.
Elite 45 WP	4–8 oz	12-hour reentry. **0-day PHI**.
Fontelis	14–20 fl oz	12-hour reentry. **0-day PHI**.
Indar 2F	6 fl oz	12-hour reentry. **0-day PHI**.
Inspire Super	16–20 fl oz	Group 3 + 9 fungicide. 12-hour reentry. **2-day PHI**.
JMS Stylet oil	1–2 gal/ 100 gal water	Need good coverage when trees are dry. 4-hour reentry.
Merivon	4–6.7 fl oz	Group 7 + 11 fungicide. Do not use with EC or oil-based products. Only nonionic surfactants can be used within 14 days of harvest. 12-hour reentry. **0-day PHI**.
Pristine	10.5–14.5 oz	Group 7 + 11 fungicide. See footnote 5, page 11. 12-hour reentry. **0-day PHI**.
PropiMax EC	4 fl oz	12-hour reentry. **0-day PHI**.
Quadris Top	12–14 fl oz	Group 3 + 11 fungicide. See footnote 5, page 11. 12-hour reentry. **0-day PHI**.
Quash	3.5–4 oz	12-hour reentry. **14-day PHI**.
Quilt Xcel	14 fl oz	Group 3 + 11 fungicide. See footnote 5, page 11. 12-hour reentry. **0-day PHI**.
Quintec	7 fl oz	12-hour reentry. **7-day PHI**. See footnote 7, page 11.
Rally 40WSP	2.5–6 oz	24-hour reentry. **0-day PHI**.
Tilt	4 oz	12-hour reentry. **0-day PHI**.
TopGuard	14 fl oz	Do not use with adjuvants. 12-hour reentry. **7-day PHI**.
Unicorn DF	2–3 lb	Group 3 + M2 fungicide. 24-hour reentry.
Cucumber beetle		
Sevin XLR Plus	2–3 qt	**3-day PHI**.
Shothole borer (if a problem) *Note:* Emergence in March to September, with three generations per year.		
Spider mites		
M-Pede	1–2% solution	Potassium salts of fatty acids. Not recommended on yellow-skin nectarines. **0-day PHI**.
Spider mites, peach silver mite		
Acaramite 50WS	0.75–1 lb	**3-day PHI**.
Apollo 50SC	4–8 fl oz	Make one application of Apollo or Savey. **21-day PHI**.
Envidor	16–18 oz	**7-day PHI**.
Pyramite 60WSP	6.6–13.2 oz	Maximum rate per season is 26.4 oz/A. **7-day PHI**.
Savey 50DF	3–6 fl oz	Will not control adults. Apply only once per season. **28-day PHI**.
Vendex 4L	1–2 pt	Do not use more than twice per season or more than 1.5 lb ai/A per year. **14-day PHI**.

Summer continues on next page

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CONTINUED—Summer		
Pest or disease/ Material	**Amount of product per acre**	**Comments/Reentry interval/Preharvest interval (PHI)**
Peach twig borer, oriental fruit moth		
Note: Apply twig borer and fruit moth sprays in early June or time sprays with pheromone traps. Apply cover spray about 14 days after pheromone traps average two moths per trap for first adult generation (May–June) or five moths per trap for second adult generation (July–August). Asana, Pounce, and Ambush also are registered but may cause spider mite problems.		
Spotted wing drosophila		
Note: Begin monitoring just before fruit starts to change to its ripening color. Insecticides recommended for management of spotted wing drosophila are based on preliminary information and may change after additional research is conducted.		
Asana XL	4.8–14.5 oz	**14-day PHI**.
Danitol 2.4 EC	10–21 oz	**3-day PHI**.
Delegate WG	4.5–7 oz	Apply no less than 1 week apart, maximum 4 times per season. **1-day PHI**.
diazinon 50WP	1 lb/100 gal water	**21-day PHI.**
malathion	See labels.	Many formulations are available: WP, ULV, and EC. WPs may leave residues visible at harvest. Fyfanon ULV is produced by Cheminova. **7-day PHI**.
Sevin XLR Plus or Sevin 80WSP	2–3 qt 3 lb	**3-day PHI**.
Success 2L	4–8 oz	Entrust is the organic formulation of spinosad. **1-day PHI**.
Warrior II	1.3–2.5 oz	**14-day PHI**.
Earwigs		
Sevin XLR Plus or Sevin 80WSP	2–3 qt 3 lb	**3-day PHI**.
San Jose scale, Lecanium scale crawlers (mid-June to early July)		
diazinon 50WP	4 lb	Limited to 1 application per season. This spray is effective only on the crawler stages of scales. **21-day PHI**.
Esteem 35WP	4–5 oz	**14-day PHI.**
Peach tree borer		
Note: Timing usually is first or second week in July, and again 3 weeks later in August. If pheromone traps are used, place in orchard in June. Position traps about 2–3 feet from ground surface. Make first application 2 weeks after first consistent trap catches. Asana, Pounce, Ambush also are registered for peach tree borers. Preharvest intervals are 14 days.		
Lorsban 4E	—	Mix 3 qt/100 gal of water and apply once per season as coarse low-pressure spray to trunks and lower crotches of peach trees. **14-day PHI**.

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Preharvest		
Pest or disease/ Material	**Amount of product per acre**	**Comments/Reentry interval/Preharvest interval (PHI)**
Brown rot fruit rot (if rain is forecasted)		
Abound	12–15.5 fl oz	See footnote 5, page 11. Do not use with silicone-based surfactants. 4-hour reentry. **0-day PHI**.
Adament 50WG	4–8 oz	Group 3 + 11 fungicide. 12-hour reentry. **1-day PHI**.
Bumper 41.8EC	4 oz	12-hour reentry. **0-day PHI**.
Captec 4L	4 qt	24-hour reentry. **0-day PHI**.
Elite 45 WP	4–8 oz	12-hour reentry. **0-day PHI**.
Fontelis	14–20 fl oz	12-hour reentry. **0-day PHI**.
Indar 2F	6 fl oz	12-hour reentry. **0-day PHI**.
Inspire Super	16–20 fl oz	Group 3 + 9 fungicide. 12-hour reentry. **2-day PHI**.
Merivon	4–6.7 fl oz	Group 7 + 11 fungicide. Do not use with EC or oil-based products. Only nonionic surfactants can be used within 14 days of harvest. 12-hour reentry. **0-day PHI**.
Orius 20 AQ	8.6–17.2 oz	12-hour reentry. **0-day PHI**.
Pristine	10.5–14.5 oz	Group 7 + 11 fungicide. See footnote 5, page 11. 12-hour reentry. **0-day PHI**.
PropiMax EC	4 fl oz	12-hour reentry. **0-day PHI**.
Quadris Top	12–14 fl oz	Group 3 + 11 fungicide. See footnote 5, page 11. 12-hour reentry. **0-day PHI**.
Quash	2.5–4 oz	12-hour reentry. **14-day PHI**.
Quilt Xcel	14 fl oz	Group 3 + 11 fungicide. See footnote 5, page 11. 24-hour reentry. **0-day PHI**.
Scala SC	9–18 fl oz	Do not apply more than 3 applications alone. **2-day PHI**.
Thiram Granuflo	3.5 lb	24-hour reentry. **7-day PHI**.
Tilt	4 oz	12-hour reentry. **0-day PHI**.
TopGuard	14 fl oz	Do not use with adjuvants. 12-hour reentry. **7-day PHI**.
Topsin 4.5FL	20–30 oz	2-day reentry. Tank-mix with another fungicide. **1-day PHI**.

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Postharvest (September–October)		
Pest or disease/ Material	**Amount of product per acre**	**Comments/Reentry interval/Preharvest interval (PHI)**
Cytospora canker	None	Paint trunks with whitewash to help prevent winter injury.
Peach leaf curl and shothole *Note:* Apply first leaf curl spray when 50% of the leaves have fallen and again at delayed dormant in late February before floral buds begin to open. An additional spray may be needed during the dormant season for shothole control depending on material selected. The addition of a spreader sticker will increase the effectiveness of some of these leaf curl sprays. Even curl-resistant cultivars need protection during the first few years.		
bordeaux 12-12-100	—	—
Bravo Weather Stik	3–4 pt	Effective if used all dormant season long. Do not add a spreader sticker. 12-hour reentry.
BSP lime sulfur	32 gal	Is a very effective product for leaf curl only. 48-hour reentry.
Cuprofix	5–10 lb	Effective only on shothole if used during the dormant season. 48-hour reentry. Many other copper products are labeled, such as C-O-C-S, Copper-Count-N, and Nordox with different reentries.
Echo 720	3–4 pt	Effective if used all dormant season long. Do not add a spreader sticker. 12-hour reentry.
Ferbam Granuflo	4.5 lb	24-hour reentry.
Nu-Cop 50DF	8–16 lb	Effective only on shothole if used during the dormant season. Many other copper products are labeled, such as C-O-C-S, Copper-Count-N, and Nordox with different reentries.
Tetrasul 4s5	15 gal	Is a very effective product for leaf curl only. 48-hour reentry.
Ziram 76DF	6–8 lb	Is a very effective product for both leaf curl and shothole. 48-hour reentry.
Shothole borer (third generation, postharvest control) *Note:* Determine approximate acreage infested and spray limbs and/or trunk to runoff. Spray infested limbs when new sawdust appears in existing shotholes, September/October.		
Lorsban 4E	3 qt/100 gal water	Apply as a trunk spray. Limited to 1 application per season.

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Footnotes

1. Bordeaux mixture may be combined with horticultural mineral oil for both peach leaf curl and Lecanium scale control. No sticker is needed with this combination.
2. Bordeaux 12-12-100 means 12 pounds of copper sulfate plus 12 pounds of 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.
3. Fungal pathogens have shown resistance to many fungicides when one is used exclusively. Alternate or tank-mix fungicides with different modes of action. Fungicides from different groups have different modes of action. Some products may already contain two different fungicides.
4. Surface scarring on stone fruits can be the result of many factors. Certain insects such as thrips deform and bronze flower buds and blossoms. Thrips can scar fruit by feeding on or laying eggs in the fruit. Most significant damage usually occurs during and shortly after pollination.

   Lygus and stink bugs also damage stone fruit at this time. Buds are injured, flowers can be sterile, and fruit may be dimpled, distorted, and "pock-marked."

   Damage from the above pests is sporadic and occurs only occasionally in some Valley orchards. Sometimes only portions of orchards or border rows are damaged. Best timing to prevent damage also coincides with pollination periods.

   Even though some varieties may be wind pollinated, bees can boost yield, often are present, and must be protected. Prebloom and petal fall sprays of spinosad (Success) should be applied in the evening after bee activity.

   Be sure fruit scarring is the result of insects before applying these sprays.

5. Do not use group 11 fungicides for more than two consecutive applications before switching to another fungicide in a different family or group with a different mode of action. Sprayers used for Abound should **not be used on apples** such as Gala, Cox's Orange Pippin, and McIntosh.
6. Powdery mildew may be a problem in some years. Nearby roses are an alternate host for this fungus. Scout for first occurrence. Chemical control is not needed after pit hardening. A similar disease called rusty spot comes from local apple trees with powdery mildew.
7. A surfactant is not required when using Quintec alone, but a nonionic surfactant is preferred if needed for tank-mixes.

Follow the "Rules" for fungicide stewardship:

Rotate or mix fungicides of different chemical groups.
Use labeled rates.
Limit total number of applications.
Educate yourself about fungicide activity, mode of action, and class—as well as resistance management practices.
Start a fungicide program with multisite mode of action materials.

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.

Table 1. Effectiveness of Fungicides and Bactericides for Peach Disease Management*

Fungicide	Fungicide group #	Brown rot (blossom blight)	Brown rot (fruit rot)	Peach leaf curl	Powdery mildew	Shothole	Pseudomonas bacterial canker
Abound	11	(Fair to) Good**	(Fair to) Good**	??	Excellent**	Fair–Good	Not effective
Botran	14	Fair	Fair	Slight	Not effective	??	Not effective
Bravo	M5	Fair–Good	Not registered	Good	Not registered	Good	Not effective
Bumper	3	Good–Excellent**	Good–Excellent**	Slight	Excellent**	Slight	Not effective
Captan (Captec)	M4	Good	Fair–Good	Slight	Not effective	Fair–Good	Not effective
Copper-based products	M1	Slight	Not registered	Fair–Good	Slight	Good	Fair–Excellent**
Echo	M5	Fair–Good	Not registered	Good	Not registered	Good	Not effective
Elevate	17	Good–Excellent	Good–Excellent	??	Not effective	??	Not effective
Elite	3	Good–Excellent**	Good–Excellent**	Fair	Excellent**	??	Not effective
Ferbam	M3	Fair	Not registered	Good	Not registered	Good	Not effective
Fontelis	7	Good–Excellent**	Good–Excellent**	??	Good–Excellent**	Good	Not effective
Gem	11	Good**	Fair–Good**	??	Excellent**	??	Not effective
Indar	3	Excellent**	Excellent**	Fair	Excellent**	??	Not effective
JMS Stylet oil	Not classified	??	??	??	Good	??	??
Lime sulfur	M2	Not recommended	Not recommended	Excellent	Not recommended	Slight	Not effective
Orius	3	Good–Excellent**	Good–Excellent**	Fair	Excellent**	??	Not effective
PropiMax	3	Excellent**	Excellent**	Slight	Excellent**	Slight	Not effective
Quash	3	Good–Excellent**	Good–Excellent**	??	Good**	??	Not effective
Quintec	13	None	None	None	Excellent**	None	None
Rally	3	Good**	Good**	??	Good**	Slight	Not effective
Rovral	2	Good**	Not registered	Slight	Not effective	Fair–Good	Not effective
Scala	9	Good	Good	??	None	??	None
Sulfur	M2	Fair	Fair (good)	Slight	Good	Not effective	Not effective
Syllit	M7	??	Not registered	??	Not registered	??	None-slight
Thiram	M3	Good	Good	Good	Not effective	??	Not effective
Tilt/Orbit	3	Good–Excellent**	Good–Excellent**	Slight	Excellent**	Slight	Not effective
TopGuard	3	Good**	Good**	??	Good–Excellent**	??	Not effective
Topsin	1	Good**	Good**	Not effective	Good**	Not effective	Not effective
Vangard	9	Good**	Not registered	??	Not effective	Fair	??
Ziram	M3	Fair	Not registered	Excellent	Not effective	Good–Excellent	Not effective
Combination products							
Adament	3 + 11	??	??	??	Excellent	??	Not effective
Inspire Super	3 + 9	Good	Good	??	Good	??	None
Merivon	7 + 11	Good	Good	??	Excellent	??	Not effective
Pristine	7 + 11	Good	Good	??	Excellent	??	Not effective
Quilt Xcel	11 + 3	Excellent	Excellent	Slight	Excellent**	Fair–Good	Not effective
Unicorn	3 + M2	Fair–Good	Fair–Good	Fair	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.

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

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Table 2. Quick Reference Guide for Herbicides Labeled for Use in Fruit and Nut Crops

- Shaded boxes indicate the herbicide is labeled for use in that crop.
- Nonbearing (NB) indicates the herbicide is labeled only for crops that will not be harvested for 1 year. It has a 365-day preharvest interval.
- For more complete information, please refer to the *PNW Weed Management Handbook*: *http://pnwhandbooks.org/weed/*.

Ingredient common name (herbicide mode of action)	**Product name example**	**Nuts**			**Pome fruits**		**Stone fruits**						**Rates**
		Chestnut	Hazelnut	Walnut	Apple	Pear	Apricot	Cherry	Nectarine	Peach	Plum	Prune	
Applications that persist in soil and are soil active (Herbicides in *bold, italic* type are recommended for new plantings.)													
napropamide (3)	***Devrinol***												5 lb ai/A (50 lb/A Devrinol 10-G)
oryzalin (3)	***Surflan***												2–6 lb ai/A (2–6 qt/A Surflan AS)
pendimethalin (3)	***Prowl***												Prowl H2O: 1.9–6 lb ai/A (2–6.3 qt/A) depending on desired length of weed control and crop
pronamide (3)	***Kerb***												1–4 lb ai/A (2–8 lb/A). Rate depends on species present and soil texture.
trifluralin (3)	***Treflan***												0.5–1 lb ai/A (1–2 pt/A Treflan 4EC)
terbacil (5)	Sinbar					NB	NB	NB			NB		0.4–0.8 lb ai/A (0.5–1 lb/A), newly established; 2–4 lb/A Sinbar, bearing, depending on soil type
simazine (5)	Princep												See product labels for rates. Princep Caliber 90 is a Special Local Needs label (OR-080038) for sweet cherries only.
diuron (7)	Karmex												See label for crop-specific application rates.
norflurazon (12)	Solicam												1.97–7.8 lb ai/A (2.5–10 lb/A Solicam)
dichlobenil (20)	Casoron												4–6 lb ai/A (100–150 lb/A Casoron). Apply in cold, wet weather.
isoxaben (21)	***Trellis***				NB	NB	NB	NB	NB	NB	NB	NB	0.5–1 lb ai/A (0.66–1.33 lb/A product)
indaziflam (29)	Alion												0.065–0.085 lb ai/A (5–6.5 oz/A product) depending on soil texture
trifluralin (3) + isoxaben (21) + oxyfluorfen (14)	Showcase	NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	5.5–5 lb ai/A (100–200 lb/A Showcase)

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Ingredient common name (herbicide mode of action)	Product name example	Nuts			Pome fruits		Stone fruits						Rates
		Chestnut	Hazelnut	Walnut	Apple	Pear	Apricot	Cherry	Nectarine	Peach	Plum	Prune	
Applications that persist in soil and have both soil and foliar activity													
penoxsulam (2)	Pindar GT												
rimsulfuron (2)	Matrix												0.063 lb ai/A (4 oz/A Matrix FNV per year)
flumioxazin (14)	Chateau												0.188–0.38 lb ai/A (6–12 oz/A Chateau WDG). Slight differences in rates and uses in SW and WDG labels.
oxyflurofen (14)	Goal												1.25–2 lb ai/A (5–8 pt/A Goal 2XL)
saflufenacil (14)	Treevix												0.045 lb ai/A (1 oz/A Treevix)
Postemergence contact and translocated herbicides													
sethoxydim (1)	Poast										NB	NB	Grass suppression in row middles. 0.28–0.47 lb ai/A (1.5–2.5 pt/A product)
clethodim (1)	Select Max		NB	NB	NB	NB	NB	NB		NB		NB	0.06–0.125 lb ai/A (6–8 oz/A Select)
fluazifop (1)	Fusilade DX		NB	NB	NB	NB							0.25–0.375 lb ai/A (16–24 oz/A Fusilade DX). Refer to specific grassy weeds listed on label.
halosulfuron (2)	Sandea												Apples: 0.035–0.094 lb ai/A (0.75–2 oz/A) Nut crops: 0.031–0.063 lb ai/A (2/3–1 1/3 oz/A)
2,4-D (4)	2,4-D												Green sucker control in hazelnuts. 0.7–0.95 lb ai/A (1.5–2 pt/A Saber)
clopyralid (4)	Stinger												0.12–0.25 lb ae/A (0.33–0.66 pt/A Stinger)
glyphosate (9)	Roundup												General weed control and grass suppression in row middles. Read label carefully for crops listed and geographic location.
glufosinate (10)	Rely												Sucker control. 0.75–1.5 lb ai/A (3–6 qt/A Rely)
carfentrazone (14)	Aim												Green sucker control in hazelnuts. 0.031 lb ai/A (2 fl oz/A Aim EC)
pyraflufen (14)	Vennue												0.7–4 fl oz product/A (0.001–0.006 lb ai/A)
diquat (22)	Reglone		NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	
paraquat (22)	Gramoxone												Green sucker control in hazelnuts. 0.625–1 lb cation/A (2.5–4 pt/A Gramoxone; 1.7–2.7 pt/A Firestorm)
acetic acid	WeedPharm												

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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://uspest.org/wea/*)
- Eastern filbert blight help page—all the information you need for this disease (*http://oregonstate.edu/dept/botany/epp/EFB/*)
- 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?fbl*) Directions for the use of each model are available at each site.
- Pacific Northwest Plant Disease Management Handbook (*http://pnwhandbooks.org/plantdisease*)
- Pacific Northwest Insect Management Handbook (*http://pnwhandbooks.org/insect*)
- Pacific Northwest Weed Management Handbook (*http://pnwhandbooks.org/weed*)

Oregon Poison Center
The Oregon Health & Science University
3181 S.W. Sam Jackson Park Road
Portland, OR 97239
Phone: 1-800-222-1222
If a person has collapsed or is not breathing, dial 911.

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.

Prepared by Jeff Olsen, Extension horticulturist, Yamhill County; Jay W. Pscheidt, Extension plant pathology specialist; and Ed Peachey, assistant professor of weed science, Department of Horticulture; all of Oregon State University. The information in this pest management guide is valid for 2013. Trade-name products and services are mentioned as illustrations only. This does not mean that the Oregon State University Extension Service either endorses these products and services or intends to discriminate against products and services not mentioned. 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.

Revised February 2013.

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