

# OSU Home Fruit Tree Pest Management Guide for the Hood River Area

## APPLE

Use only one material except where a combination is indicated. Follow all pesticide label instructions, precautions and restrictions.

Stage or Time	Pest or Disease	Material or Practices	Comments
1-2 (delayed dormant)	mites, scale, leafroller	horticultural mineral oil and wettable sulfur or lime sulfur*	<p>Successful control of pests using chemicals depends on many factors including choice of material, application timing, application frequency, and coverage. Early season sprays are timed for stage of bud/fruit development. See the accompanying diagram showing bud stages. Spring through summer sprays are timed by pest development. For information on current season pest emergence and determining when to initiate pesticide applications, contact your local OSU Extension Service Office. In the Hood River area, call 541-386-3343.</p> <p>This guide includes pesticides currently registered for home use that have a reasonable chance of controlling the apple pests listed if applied at appropriate times with adequate frequency, and sufficient coverage. Other materials are available that will provide suppression of these pests under conditions of low pest pressure but probably will not provide sufficient control under local conditions. Pesticides are listed by active ingredient. Consult the attached list of pesticide products for controlling fruit tree pests and diseases for brand name products containing these active ingredients.</p> <p>**Codling moth: Codling moth control will require multiple spray applications. Successful control requires thorough coverage of all leaf and fruit surfaces. The frequency of application or spray interval is specified on the product label but generally ranges from 7 to 10 days for these pesticides.</p> <p>***Fruit bagging is a non-chemical approach to codling moth and apple maggot control that can be very successful. Bagging may not be practical on large trees and must be completed before codling moth egg-laying begins (usually late April). One or more well timed oil sprays followed by bagging may be an effective program for codling moth. For information on bagging see: <a href="http://www.ipm.ucdavis.edu/PMG/PESTNOTES/pn7412.html">http://www.ipm.ucdavis.edu/PMG/PESTNOTES/pn7412.html</a>.</p>
3-4 (prepink)	scab, powdery mildew	wettable sulfur or lime sulfur*	
5-6 (pink)	scab, powdery mildew	myclobutanil, wettable sulfur, or lime sulfur*	
petal fall	scab, powdery mildew	myclobutanil, wettable sulfur, or lime sulfur*	
spring-summer until fruit is harvested or mid-August (whichever is first)	codling moth ( <i>most important</i> )**	acetamiprid, carbaryl, granulosis virus, spinosad	
		horticultural mineral oil at 200, 400, 600, 1200, 1350, & 1500 degree days	
		horticultural mineral oil at above schedule then bagging***	
Mid-July through harvest	apple maggot ( <i>most important</i> )	fruit bagging or spinosad or carbaryl applications starting mid-July will control apple maggot	
postharvest	general sanitation	collect and dispose of groundfall or unused fruit; remove & destroy diseased branches	
	anthracnose	fixed copper	
leaf fall	scab	rake & destroy leaves	
Use appropriate personal protective equipment and handling procedures to avoid exposure with all pesticides. *Lime sulfur poses additional severe hazards from exposure.			



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## PEAR

Use only one material except where a combination is indicated. Follow all pesticide label instructions, precautions and restrictions.

Stage or Time	Pest or Disease	Material or Practices	Comments
0 (dormant)	pear psylla, mites, scale, leafroller	horticultural mineral oil and wettable sulfur or lime sulfur*	<p>Successful control of pests using chemicals depends on many factors including choice of material, application timing, application frequency, and coverage. Early season sprays are timed for stage of bud/fruit development. See the accompanying diagram showing bud stages. Spring through summer sprays are timed by pest development. For information on current season pest emergence and determining when to initiate pesticide applications, contact your local OSU Extension Service Office. In the Hood River area, call 541-386-3343.</p> <p>This guide includes pesticides currently registered for home use that have a reasonable chance of controlling the pear pests listed if applied at appropriate times with adequate frequency, and sufficient coverage. Other materials are available that will provide suppression of these pests under conditions of low pest pressure but probably will not provide sufficient control under local conditions. Pesticides are listed by active ingredient. Consult the attached list of pesticide products for controlling fruit tree pests and diseases for brand name products containing these active ingredients.</p> <p>**Codling moth: Codling moth control will require multiple spray applications. Successful control requires thorough coverage of all leaf and fruit surfaces. The frequency of application or spray interval is specified on the product label but generally ranges from 7 to 10 days for these pesticides.</p> <p>***Fruit bagging is a non-chemical approach to codling moth control that can be very successful. Bagging may not be practical on large trees and must be completed before codling moth egg-laying begins (usually late April). One or more well timed oil sprays followed by bagging may be an effective program for codling moth.</p> <p>For information on bagging see:  <a href="http://www.ipm.ucdavis.edu/PMG/PESTNOTES/pn7412.html">http://www.ipm.ucdavis.edu/PMG/PESTNOTES/pn7412.html</a>.</p>
1-2 (delayed dormant)	pear psylla, mites, scale, leafroller	horticultural mineral oil and wettable sulfur or lime sulfur*	
3-5 (pink)	scab, powdery mildew	wettable sulfur or lime sulfur*	
petal fall	scab, powdery mildew	wettable sulfur** or lime sulfur* **	
spring-summer until fruit is harvested or mid-August (whichever is first)	codling moth ( <i>most important</i> )**	acetamiprid, carbaryl, granulosis virus, spinosad	
		horticultural mineral oil at 200, 400, 600, 1200, 1350, & 1500 degree days	
		horticultural mineral oil at above schedule then bagging***	
postharvest	general sanitation	collect and dispose of groundfall or unused fruit; remove & destroy diseased branches	
leaf fall	scab	rake & destroy leaves	
<p>Use appropriate personal protective equipment and handling procedures to avoid exposure with all pesticides.</p> <p>*Lime sulfur poses additional severe hazards from exposure.</p> <p>**Applying sulfur or lime sulfur after delayed dormant may mark d'Anjou pears.</p>			



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## CHERRY

Use only one material except where a combination is indicated. Follow all pesticide label instructions, precautions and restrictions.

Stage or Time	Pest or Disease	Material or Practices	Comments
0-3 (dormant to delayed dormant)	aphids, leaf rollers, mites, scale	horticultural mineral oil	<p>Successful control of pests using chemicals depends on many factors including choice of material, application timing, application frequency, and coverage. Early season sprays are timed for stage of bud/fruit development. See the accompanying diagram showing bud stages. Spring through summer sprays are timed by pest development. For information on current season pest emergence and determining when to initiate pesticide applications, contact your local OSU Extension Service Office. In the Hood River area, call 541-386-3343.</p> <p>This guide includes pesticides currently registered for home use that have a reasonable chance of controlling the cherry pests listed if applied at appropriate times with adequate frequency, and sufficient coverage. Other materials are available that will provide suppression of these pests under conditions of low pest pressure but probably will not provide sufficient control under local conditions. Pesticides are listed by active ingredient. Consult the attached list of pesticide products for controlling fruit tree pests and diseases for brand name products containing these active ingredients.</p> <p>*Western cherry fruit fly and spotted wing Drosophila control: pesticide applications are made to protect fruit from egg-laying adult flies and should generally be initiated when fruit begins to change to ripe color. For information on current season pest emergence and determining when to initiate pesticide applications, contact your local OSU Extension Service Office. In the Hood River area, call 541-386-3343. Successful control requires thorough coverage of all leaf and fruit surfaces and will likely require multiple spray applications. The frequency of application or spray interval is specified on the product label but generally ranges from 7 to 10 days for these pesticides. Collect and destroy fruit remaining on tree after harvest to prevent infestation if spray program has been discontinued.</p>
4-5 (popcorn)	brown rot blossom blight	chlorothalonil, myclobutanil, propiconazole, wettable sulfur	
7 (full bloom)	brown rot blossom blight	chlorothalonil, myclobutanil, propiconazole, wettable sulfur	
shuck fall	powdery mildew	myclobutanil, horticultural mineral oil, propiconazole, wettable sulfur	
spring-summer until all fruit is harvested	<i>(most important)*</i> western cherry fruit fly spotted wing Drosophila	carbaryl, malathion, spinosad	
summer	powdery mildew	myclobutanil, horticultural mineral oil, propiconazole, wettable sulfur	
preharvest	brown rot fruit rot (if rain is forecasted)	myclobutanil, propiconazole, wettable sulfur	
postharvest	general sanitation	collect and dispose of groundfall or unused fruit; remove & destroy diseased branches	
leaf fall	brown rot	Remove and destroy mummy fruit	
Use appropriate personal protective equipment and handling procedures to avoid exposure with all pesticides.			



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## PEACH & NECTARINE

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Stage or Time	Pest or Disease	Material or Practices	Comments
0 (dormant)	Shot hole, peach leaf curl	chlorothalonil, fixed copper or lime sulfur*	<p>Successful control of pests using chemicals depends on many factors including choice of material, application timing, application frequency, and coverage.</p> <p>Early season sprays are timed for stage of bud/fruit development. See the accompanying diagram showing bud stages. Spring through summer sprays are timed by pest development. For information on current season pest emergence and determining when to initiate pesticide applications, contact your local OSU Extension Service Office. In the Hood River area, call 541-386-3343.</p> <p>This guide includes pesticides currently registered for home use that have a reasonable chance of controlling the peach and nectarine pests listed if applied at appropriate times with adequate frequency, and sufficient coverage. Other materials are available that will provide suppression of these pests under conditions of low pest pressure but probably may not provide sufficient control under local conditions. Pesticides are listed by active ingredient. Consult the attached list of pesticide products for controlling fruit tree pests and diseases for brand name products containing these active ingredients.</p> <p>**Spotted wing Drosophila: peach and nectarine are likely to be attacked if allowed to tree ripen. One or two spray applications starting when fruit begins to change to mature color should provide control. Repeat application at interval specified on the product label.</p>
1 (delayed dormant)	aphids, mites, scale	horticultural mineral oil	
2-5 (prebloom)	brown rot blossom blight	chlorothalonil, myclobutanil, propiconazole, wettable sulfur	
6-7 full bloom	brown rot blossom blight	chlorothalonil, myclobutanil, propiconazole, wettable sulfur	
shuck fall	powdery mildew	myclobutanil, horticultural mineral oil, propiconazole, wettable sulfur	
	shothole	chlorothalonil, myclobutanil	
summer	powdery mildew	myclobutanil, horticultural mineral oil, propiconazole, wettable sulfur	
	peach twig borer	spinosad	
preharvest	spotted wing Drosophila*	spinosad, carbaryl	
	brown rot fruit rot (if rain is forecasted)	myclobutanil, propiconazole, wettable sulfur	
postharvest	general sanitation	collect and dispose of groundfall or unused fruit; remove & destroy diseased branches	
leaf fall	brown rot	Remove and destroy mummy fruit	
	peach leaf curl	Chlorothalonil or lime sulfur*	
	shothole		
Use appropriate personal protective equipment and handling procedures to avoid exposure with all pesticides.			
*Lime sulfur poses additional severe hazards from exposure.			



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## PLUM & PRUNE

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Follow all pesticide label instructions, precautions and restrictions.

Stage or Time	Pest or Disease	Material or Practices	Comments
0-3 (dormant to delayed dormant)	aphids, mites, scale	horticultural mineral oil	<p>Successful control of pests using chemicals depends on many factors including choice of material, application timing, application frequency, and coverage. Early season sprays are timed for stage of bud/fruit development. See the accompanying diagram showing bud stages. Spring through summer sprays are timed by pest development. For information on current season pest emergence and determining when to initiate pesticide applications, contact your local OSU Extension Service Office. In the Hood River area, call 541-386-3343.</p> <p>This guide includes pesticides currently registered for home use that have a reasonable chance of controlling the plum and prune pests listed if applied at appropriate times with adequate frequency, and sufficient coverage. Other materials are available that will provide suppression of these pests under conditions of low pest pressure but probably will not provide sufficient control under local conditions. Pesticides are listed by active ingredient. Consult the attached list of pesticide products for controlling fruit tree pests and diseases for brand name products containing these active ingredients. Successful control generally requires thorough coverage of all leaf and fruit surfaces.</p> <p>*Spotted wing Drosophila: plum and prune are likely to be attacked if allowed to tree ripen. One or two spray applications starting when fruit begins to change to mature color should provide control. Repeat application at interval specified on the product label.</p>
4-5 (popcorn)	brown rot blossom blight	chlorothalonil, myclobutanil, propiconazole, wettable sulfur	
7 (full bloom)	brown rot blossom blight	chlorothalonil, myclobutanil, propiconazole, wettable sulfur	
shuck fall	brown rot blossom blight	chlorothalonil, myclobutanil, propiconazole, wettable sulfur	
preharvest	spotted wing Drosophila*	spinosad, carbaryl	
	brown rot fruit rot (if rain is forecasted)	myclobutanil, propiconazole, wettable sulfur	
postharvest	general sanitation	collect and dispose of groundfall or unused fruit; remove & destroy diseased branches	
leaf fall	brown rot	Remove and destroy mummy fruit	
Use appropriate personal protective equipment and handling procedures to avoid exposure with all pesticides.			



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## APRICOT

### ***Never spray apricots with any sulfur containing pesticide.***

Use only one material except where a combination is indicated. Follow all pesticide label instructions, precautions and restrictions.

Stage or Time	Pest or Disease	Material or Practices	Comments
0 (dormant)	shot hole	chlorothalonil, fixed copper	<p>Successful control of pests using chemicals depends on many factors including choice of material, application timing, application frequency, and coverage. Early season sprays are timed for stage of bud/fruit development. See the accompanying diagram showing bud stages. Spring through summer sprays are timed by pest development. For information on current season pest emergence and determining when to initiate pesticide applications, contact your local OSU Extension Service Office. In the Hood River area, call 541-386-3343.</p> <p>This guide includes pesticides currently registered for home use that have a reasonable chance of controlling the apricot pests listed if applied at appropriate times with adequate frequency, and sufficient coverage. Other materials are available that will provide suppression of these pests under conditions of low pest pressure but probably will not provide sufficient control under local conditions. Pesticides are listed by active ingredient. Consult the attached list of pesticide products for controlling fruit tree pests and diseases for brand name products containing these active ingredients.</p> <p>*Spotted wing Drosophila: apricot is likely to be attacked if allowed to tree ripen. One or two spray applications starting when fruit begins to change to mature color should provide control. Repeat application at interval specified on the product label.</p>
1 (delayed dormant)	aphids, mites, scale	horticultural mineral oil	
2-5 (prebloom)	brown rot blossom blight	chlorothalonil, myclobutanil, propiconazole	
6-7 (full bloom)	brown rot blossom blight	chlorothalonil, myclobutanil, propiconazole	
shuck fall	shothole	chlorothalonil	
summer	brown rot fruit rot	myclobutanil, propiconazole	
	powdery mildew		
preharvest	spotted wing Drosophila*	spinosad, carbaryl	
	brown rot fruit rot (if rain is forecasted)	myclobutanil, propiconazole	
postharvest	general sanitation	collect and dispose of groundfall or unused fruit; remove & destroy diseased branches	
leaf fall	brown rot	Remove and destroy mummy fruit	
	shot hole	chlorothalonil, fixed copper	
Use appropriate personal protective equipment and handling procedures to avoid exposure with all pesticides.			



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# Bud development chart

Stage	Apple	Pear	Peach/Apricot	Cherry/Plum
0				
1				
2				
3				
4				
5				
6				
7				



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## **Home Use Pesticides for Controlling Fruit Tree Pests & Diseases**

- acetamiprid – Ortho Flower Fruit & Vegetable Insect Killer
- carbaryl (Sevin) – many products, e.g. Garden Tech Sevin
- chlorothalonil – Ortho Max Garden Disease Control; Monterey Fruit Tree, Vegetable, & Ornamental Fungicide
- copper – Monterey Liqui-cop; Lilly Miller Microcop, Kop-R-Spray
- granulosis virus (codling moth) – Cyd-X available from Peaceful Valley Farm Supply:  
<http://www.groworganic.com>
- horticultural mineral oil – Monterey Saf-T-Side
- lime sulfur – Lilly Miller Polysul
- malathion - many products, e.g. Bonide Malathion Insect Control
- myclobutanil – Spectracide Immunox
- propiconazole – Monterey Fungi-Fighter
- spinosad - Monterey Garden Insect Spray
- wettable sulfur – many products, e.g. Bonide micronized sulfur

### **Other Resources**

For detailed information on fruit tree pests, see <http://jenny.tfrec.wsu.edu/opm/>.

For detailed information on fruit tree diseases, see <http://pnwhandbooks.org/plantdisease/>.

Monitoring supplies available from Great Lakes IPM - <http://www.greatlakesipm.com/>.