



Extension Service Wasco County

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Disease and Insect Management Guide for Home Orchards for Wasco County

Adapted from EC 631 – *Managing Diseases and Insects in Home Orchards* by J. Pscheidt, H. Stoven, S. Castagnoli, and S. Renquist

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This home orchard spray chart should be used only as a guide. Not all pests and diseases listed will need to be controlled every year. Please familiarize yourself with the proper identification of pests and diseases and apply an appropriate control measure only when necessary. OSU Master Gardeners can help you identify thresholds that require control measures.

The label is the law. Read the label before purchasing or applying pesticides.

APPLES

Time of Application	Insect or Disease	Materials or Practices
Late winter (dormant)	scale, aphids, and mite eggs	dormant oil
Prepink (before pink bloom shows)	Powdery Mildew	<i>Bacillus subtilis</i> or myclobutanil
Petal fall	Powdery mildew	<i>Bacillus subtilis</i> , HMO, insecticidal soap, or myclobutanil
	Aphids	<i>Beauveria bassiana</i> , insecticidal soap, or myclobutanil
Summer to harvest	Codling moth	To be effective, insecticide coverage must be maintained whenever fruit and moths are present. Applications every 7 to 14 days may be necessary, especially near commercial orchards. Acetamiprid, carbaryl, Cyd-X, esfenvalerate, gamma-cyhalothrin, kaolin, lambda-cyhalothrin, malathion, neem, pyrethrins, and spinosad are registered for homeowner use. Begin applications 21 days after full bloom.
	Apple Maggot	carbaryl, kaolin, malathion, or pyrethrins Where apple maggot occurs, treat from late July until harvest at 10- to 14-day intervals. Sticky traps can be used for monitoring and control.
	Spider mites	insecticidal soap, plant-derived oils, or sulfur
	San Jose and lecanium scale	HMO or other plant-derived oils, insecticidal soap, or neem
	Aphids	<i>Beauveria bassiana</i> , insecticidal soap, malathion, neem, permethrin, or pyrethrins May require two sprays about 10 days apart. Most effective if treated early

PEARS

Time of Application	Insect or Disease	Materials or Practices
Late winter (dormant)	Pseudomonas blight	fixed copper before buds open
	Scale, aphid, pear psylla, blister mites, and mite eggs	sulfur with dormant oil
Prepink (before pink bloom shows)	Pear psylla	insecticidal soap, kaolin, or neem
Pink (just before blossoms open)	Powdery mildew	Bonide Fruit Tree and Plant Guard
Petal fall	Powdery mildew	Bonide Fruit Tree and Plant Guard
	Aphids	insecticidal soap or neem May require two sprays about 10 days apart. Most effective if treated early.
Spring (especially after main bloom)	Fire blight	Remove and destroy infected branches. Make cuts 12 inches below infected branches. Disinfect pruning tools between cuts with 70% ethyl alcohol. Remove late blooms when noticed. Difficult to control.
Summer to harvest	Pseudomonas blight (for Asian pears)	Summer pruning will help reduce branch dieback caused by this disease.
	Codling moth	To be effective, insecticide coverage must be maintained whenever fruit and moths are present. Applications every 7 to 14 days may be necessary, especially near commercial orchards. Acetamiprid, bifenthrin, carbaryl, Cyd-X, esfenvalerate, gamma-cyhalothrin, insecticidal soap, lambda-cyhalothrin, malathion, permethrin, pyrethrins, and spinosad are registered for homeowner use. Begin applications 21 days after full bloom.
	Spider mites	HMO or sulfur
	San Jose scale crawlers	HMO or other plant-derived oils, insecticidal soap, or neem
	Pear psylla	esfenvalerate, insecticidal soap, kaolin, or neem
Aphids	insecticidal soap, kaolin, or neem	
Postharvest (in fall after all fruit is harvested)	Blister mites and pear rust mites	sulfur with oil

WALNUTS

Time of Application	Insect or Disease	Materials or Practices
Mid-July to mid-August	Walnut husk flies	esfenvalerate, gamma-cyhalothrin, pyrethrins, or spinosad Use yellow sticky traps to time spray applications

PEACHES AND NECTARINES

Time of Application	Insect or Disease	Materials or Practices
Late winter (dormant)	Cytospora canker and Pseudomonas	Can cause branch dieback. Remove and burn infected wood.
Dormant (two sprays: Dec. 15 and before Jan. 15)	Leaf curl and shothole	chlorothalonil or fixed copper
Late February	Aphid and mite eggs, and scale ----- Leaf curl	dormant oil For best results, do not combine with leaf curl spray. ----- chlorothalonil
Bloom stages	Brown rot blossom blight	captan, chlorothalonil, or propiconazole Spray once per week, from first showing pink through petal fall. Needed only when rain is forecasted during bloom.
Prepink and petal fall	Leafrollers	<i>Bacillus thuringiensis (Bt)</i> , carbaryl, esfenvalerate, neem, or spinosad
1 week after blossom petals fall and/or at shucksplit*	Shothole	captan or chlorothalonil Needed only when spring weather is cool and rainy.
Early June	Peach twig borer	esfenvalerate, gamma-cyhalothrin, permethrin, or pyrethrins Do not use permethrin on nectarines. Pheromone traps can be used to time sprays.
Summer spray (early July and again 3 weeks later)	Peachtree borer	carbaryl, gamma-cyhalothrin, permethrin, or pyrethrins. Do not use carbaryl, malathion, or pyrethrins on nectarines. Spray trunk and lower limbs thoroughly. Do not spray fruit. Pheromone traps can be used to time sprays. Young trees are especially susceptible to injury from peachtree borers.
Fruit set to harvest	Brown rot	Regularly remove and destroy any fallen or rotted fruit prior to harvest.
14 to 21 days before picking	Earwigs ----- Spotted wing <i>Drosophila</i>	carbaryl Spray trunk and base of trunk thoroughly. ----- carbaryl, esfenvalerate, malathion, pyrethrins, or spinosad. Applications may need to be repeated at frequent intervals. Fruit becomes susceptible to attack around the time of color change to light tan. Peach and nectarine may be attacked if fruit is allowed to tree ripen.
Autumn or early winter when leaves begin to fall	Shothole and leaf curl	chlorothalonil
Anytime before budbreak	Brown rot	Remove and destroy any rotted or mummified fruit remaining in or around the tree.

*Shucksplit is the shedding of the papery sheath surrounding the small, young fruit shortly after bloom.

APRICOTS

Time of Application	Insect or Disease	Materials or Practices
Late winter (dormant)	Scale and mite eggs	dormant oil
Bloom stages (first showing pink to petal fall)	Brown rot	captan, chlorothalonil, or propiconazole Needed only when rain is forecasted during bloom.
Shucksplit*	Coryneum blight (shothole)	captan or myclobutanil Fungicide needed only if rain is expected within 2 weeks.
Summer spray	Peachtree borer	gamma-cyhalothrin or lambda-cyhalothrin Spray trunk and lower limbs thoroughly. Do not spray fruit. Pheromone traps can be used to properly time sprays.
2 weeks preharvest	Spotted wing Drosophila	carbaryl, esfenvalerate, malathion, pyrethrins, or spinosad Applications may need to be repeated at frequent intervals. Apricot may be attacked if fruit is allowed to tree ripen.
Fall (before rain begins)	Coryneum blight (shothole) ----- Brown rot	chlorothalonil or fixed copper ----- Remove and destroy any rotted or mummified fruit in or around trees.

*Shucksplit is the shedding of the papery sheath surrounding the small, young fruit shortly after bloom.

PRUNES AND PLUMS

Time of Application	Insect or Disease	Materials or Practices
Late winter (dormant)	Aphid and mite eggs, and scale	dormant oil
Petal-fall stage	Aphids ----- Leafrollers	<i>Beauveria bassiana</i> , esfenvalerate, insecticidal soap, or neem ----- esfenvalerate or spinosad Spray after bloom to prevent accidental poisoning of bees during the pollination period.
Summer spray (early July and 3 weeks later)	Peachtree borer	gamma-cyhalothrin or lambda-cyhalothrin Spray trunk and lower limbs thoroughly. Do not spray fruit. Pheromone traps can be used to properly time sprays.
Preharvest	Spotted wing Drosophila	carbaryl, esfenvalerate, pyrethrins, or spinosad May attack fruit if allowed to tree ripen. Applications may need to be repeated at frequent intervals.

CHERRIES

Time of Application	Insect or Disease	Materials or Practices
Late winter (dormant)	Aphid and mite eggs, scale, and leafrollers	dormant oil
Bloom stages (white tip to petal fall)	Brown rot blossom blight (Mosier only)	captan, chlorothalonil, or propiconazole Spray once or twice during early bloom if rain is forecasted.
Petal-fall stage	Black cherry aphid ----- Leafrollers ----- Brown rot (Mosier only)	<i>Beauveria bassiana</i> , esfenvalerate, insecticidal soap, malathion, pyrethrins, or neem ----- <i>Bacillus thuringiensis (Bt)</i> , carbaryl, malathion, or spinosad ----- captan, chlorothalonil, myclobutanil, or propiconazole Needed only if rain is forecasted.
Shucksplit*	Powdery mildew (a problem east of the Cascades)	<i>Bacillus subtilis</i> , myclobutanil, oils (botanical or HMO), propiconazole, or sulfur
Late spring when fruit flies emerge (about Memorial Day)	Cherry fruit fly** ----- Spotted wing Drosophila ----- Powdery mildew	carbaryl, esfenvalerate, malathion, pyrethrins, or spinosad Applications may need to be repeated at 7- to 14-day intervals. CFF emergence will be announced in local media. ----- carbaryl, esfenvalerate, malathion, pyrethrins, or spinosad Applications may need to be repeated at frequent intervals. Fruit becomes susceptible to attack around the time of color change from green to light tan. ----- <i>Bacillus subtilis</i> , myclobutanil, oils (botanical or HMO), propiconazole, or sulfur
Summer (if pests appear)	Spider mites ----- Aphids	Insecticidal soap ----- <i>Beauveria bassiana</i> , esfenvalerate, insecticidal soap, malathion, or neem
1 to 2 weeks before harvest (only if rain is likely)	Brown rot fruit rot (only if cherries damaged by rain)	propiconazole or sulfur
After harvest during dry weather	Bacterial canker and Cytospora canker	Can cause branch dieback. Remove and destroy infected wood.

*Shucksplit is the shedding of the papery sheath surrounding the small, young fruit shortly after bloom.

**Residents in northern Wasco County (The Dalles, Mosier, and as far south as Wamic) are required by state ordinance to control cherry fruit fly.

Table 1. Homeowner/small orchard products (from EC 631 – Managing Diseases and Insects in Home Orchards)

Common Name	Some brand names	Some uses ¹	Preharvest interval ²
acetamiprid	Ortho Max Flower, Fruit & Vegetable Insect Killer	Codling moth	7
<i>Bacillus subtilis</i>	Bayer Advanced Natria Disease Control, Serenade Garden Disease Control	Diseases	0
<i>Bacillus thuringiensis (Bt)</i>	Thuricide	Leafrollers	0
<i>Beauveria bassiana</i>	Naturalis-O	Aphids	Not specified
bifenthrin	Ortho Max Lawn & Garden Insect Killer (pears only)	Codling moth	14
botanical oils such as neem and jojoba ⁵	E-Rase, Organocide 3-in-1 Spray	Powdery mildew and some insects	Not specified
captan	Hi-Yield Captan, Bonide Captan	Diseases	1
carbaryl	Sevin	Many insects	3
chlorothalonil (Daconil)	Bonide Fung-onil, GardenTech Daconil	Diseases	Do not apply after shucksplit
codling moth granulosis virus	Cyd-X	Codling moth	0
combination sprays ³	Home Orchard Spray, Bonide Fruit Tree and Plant Guard	Diseases and insects	3 – 7 ⁴
dormant oil ⁵	Dormant oil	Winter diseases, insects, and mites	Use only during dormant season
esfenvalerate	Bug-B-Gone	Husk fly and codling moth	21 to 28 ⁴
fixed copper	Monterey Liqui-Cop and many others	Diseases	Use only early in season or postharvest
gamma-cyhalothrin	Spectracide Triazide Insect Killer	Many insects	14 – 21 ⁴
horticultural mineral oils (HMO) ⁵	Volck Oil, Ferti-Lome Horticultural Spray Oil	Spring/summer diseases, insects, and mites	0
insecticidal soap ⁵	Safer's Insecticidal Soap	Soft-bodied pests like mites and aphids. Also powdery mildew	0
kaolin clay	Surround at Home	Pear psylla and apple maggot	Not specified
lambda-cyhalothrin	Fruit Tree & Plant Guard	Many insects	14 – 21 ⁴
malathion	Malathion	Many insects	1 – 7 ⁴
myclobutanil ⁶	Spectricide Immunox	Diseases	1 day stone fruits; 14 days apples
neem ⁵	Concern Garden Defense, Natural Guard Neem	Many insects	Not specified
permethrin	Bonide Eight Insect Control	Many insects	1 – 14 ⁴
propiconazole ⁶	Bonide Infuse Systemic	Diseases	0
pyrethrins	Bonide Pyrethrin Garden Spray	Many insects	1
spinosad	Bull's-Eye	Leafminers and leafrollers	7 – 14
sulfur ⁵	Safer's Garden Fungicide, Sulfur, Sulfur Dust	Diseases and mites	1

¹ See charts for complete list of uses.

² Days to wait after spraying until picking.

³ Contains fungicides and insecticides. Do not apply during bloom.

⁴ For the fruit or nut tree you are spraying, check the manufacturer's label for the proper interval.

⁵ Soaps and oils are not compatible with sulfurs. Mixing them together or using one right after the other can result in plant damage.

⁶ Frequent use can lead to the development of diseases resistant to the chemical.