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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

Revised for Wasco County by Lynn E. Long and Michelle Sager

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 Drosophila | 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.