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# Insects of Ornamentals and Their Control

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Everyone can be proud of beautiful shrubs and trees. This beauty can be protected through proper insect control. Descriptions of the common pests which attack shrubs and trees, their feeding injury and control, are given in this leaflet.

Effective insect control is based on *proper application* of an appropriate chemical at the correct time. There is no one material that will adequately control all insects. Control recommendations are made suggesting precise timing of the application of an insecticide to match the most vulnerable stage in development of the insect pest. Improper application of these treatments may allow injury to occur. Proper pruning to remove diseased and dead wood will facilitate better insect control.

Insecticides can be purchased as wettable powder or as emulsifiable concentrate formulations. Both must be diluted in a prescribed amount of water and applied as sprays. Sprays prepared with emulsifiable concentrations require less agitation; however, they may burn tender foliage, especially when applied during the heat of the day. General purpose insecticide combinations which can be purchased for spraying ornamentals usually include some of the chemicals listed. Many of the commercially prepared mixtures contain fungicides as well as insecticides.

Certain insects require special treatments. Proper timing of spray applications and thorough coverage of leaves, stems, branches and trunk are as important as the chemicals used. Follow the label directions closely when preparing and applying all sprays. Some damage can be tolerated

without harming the beauty of your ornamentals so the presence of a harmful insect does not automatically justify control measures. Remember, the leaves have two sides. Be sure to wet both. Treat the foliage until the spray starts to drip from the leaves.

## Equipment

There are many types and sizes of sprayers suitable for spraying lawn and ornamental plantings. Select the type of equipment that will meet all your spraying requirements.

**Hose-on sprayer** — Simple to operate, these small sprayers are designed to be attached to a garden hose. They require no spray tank but operate by metering out a desired amount of chemical into a stream of water. Problems encountered with some types of these sprayers have been poor spray distribution, clogging of nozzles and poor mixing of the insecticide with the water.

**Trombone sprayer** — Spray mixture can be prepared in any size container and applied by inserting the intake apparatus into the container and operating the sprayer with a trombone-like motion. A uniform concentration of the spray can be maintained since the insecticide is mixed with a known quantity of water. However, frequent agitation of the spray mixture is necessary when using a wettable powder formulation. This sprayer is the easiest to wash and keep clean.

**Compressed air sprayer** — Compressed air sprayers with 1- to 5-gallon capacity has wide adaptability for spraying small plantings. Air is pumped into the tank and forces the spray out when the nozzle is opened. It

is advisable when using wettable powder insecticides to shake the sprayer frequently to keep them in suspension.

**Knapsack sprayer** — This sprayer is carried on the back. The hand operated piston pump supplies the pressure during application. The capacity of these sprayers is 3- to 5-gallons.

**Small power sprayers** — There are many small motor driven sprayers mounted on wheels capable of adequately treating large trees. Some are self-propelled while others are not. The auxiliary attachments to "snow blowers", "garden tractors" and "riding mowers" can be quite effective when they aren't extended beyond capacities.

All sprayers should be thoroughly washed and dried before storing. The moving parts and the threads of nozzles should be oiled. Proper maintenance immediately after using will lengthen the trouble-free life of the sprayer.

If you do not have adequate spray equipment, you should secure the services of a reputable commercial operator.

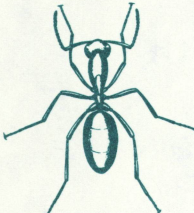
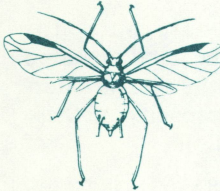
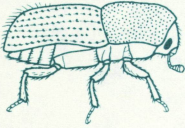

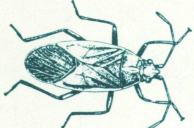
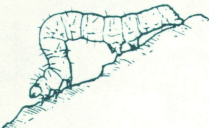
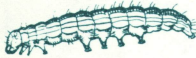
## Abbreviations

WP: Wettable powder  
EC: Emulsifiable (liquid) concentrate  
D: Dust  
G: Granule  
Tbl: tablespoon  
tsp: teaspoon  
pt: pint  
1 tbl. = 3 tsp.  
16 tbl. = 1 cup  
2 cups = 1 pint



## HOSTS AND COMMON PESTS




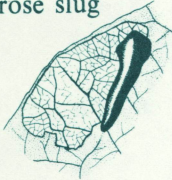

Many different insects attack our lawns, shrubs, and trees. The following are the common pests. For assistance in control of pests not listed, take pest and damaged plant specimens to your County Extension Agent or send to Extension Entomologist, Department of Entomology, University of Idaho, Moscow, 83843.

Pest	Injury and plants attacked	When to treat	Method of treatment
<b>Ants</b> 	<p>Tiny to large, yellow to red to black and bicolored ants living in soil of garden and lawn. Those frequenting shrubs and trees are associated with aphid and scale infestations upon whose sweet secretions they feed. Under these conditions ants drive off or kill the natural enemies of these insects.</p>	<p>When encountered locate nests in soil.</p>	<p>Incorporate Diazinon or Dursban or Sevin into soil or spray area of ant activity at weekly intervals until ants disappear.</p>
<b>Aphids</b> 	<p>Soft bodied gray, green, red, or black insects about <math>\frac{1}{8}</math> inch long. They suck plant juices from leaves and new growth of many deciduous trees and shrubs as well as conifers. Produce large amounts of sticky honeydew which may eventually turn black and which attracts ants.</p>	<p>Delayed-dormant: After buds swell but before buds break open. Spring and summer as needed.</p>	<p>Dormant oil to twigs and branches or combination of superior oil and calcium polysulfide.            Malathion or Dimethoate or Orthene or Meta-Systox-R or Diazinon. Pour 1 qt of Dimethoate or Meta-Systox-R spray into soil about crown of each rose bush.</p>
<b>Bark beetles</b> 	<p>Small brown to black beetles that attack sick or weakened trees. Shot size holes appear in bark where adults emerge. Larvae feed under bark. High populations can kill trees.</p>	<p>Late May and mid-June.</p>	<p>Use 6 tablespoons Lindane per gallon of water. Spray trunks thoroughly as high as your sprayer will reach and wet to run off.</p>
<b>Borers</b> 	<p>Large insects, usually beetle or moth larvae. Control has to be applied to prevent egg laying by adults. There is no effective control for larvae boring in wood.</p>	<p>Mid-June, mid-July and mid-August.</p>	<p>Apply Lindane or Thiodan spray to larger branches and trunk.</p>
<b>Boxelder bug</b> 	<p>Adults are <math>\frac{1}{2}</math> inch long, brownish-black with the underside of the abdomen bright orange-red. They suck plant juices from trees and fruit. Seldom does their damage justify control.</p>	<p>Early spring when they congregate on buildings and as needed.</p>	<p>Apply residual spray of Sevin or Lindane to buildings or spray foliage.</p>
<b>Caterpillars</b> 	<p>Larvae of butterflies and moths which usually feed in large numbers defoliating limbs or entire plants.</p>	<p>Spray when small worms first appear.</p>	<p>Sevin or Diazinon or Malathion or Dylox or Lindane or Orthene.</p>
<b>Cutworms</b> 	<p>These smooth tan to black worms feed mostly at night on foliage. They cut off or shred foliage when numerous.</p>	<p>Dust or spray around base of plants in the evening when problem occurs.</p>	<p>Sevin or Diazinon or Dylox.</p>

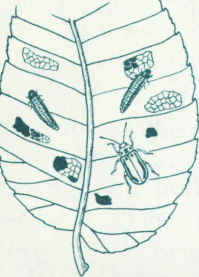
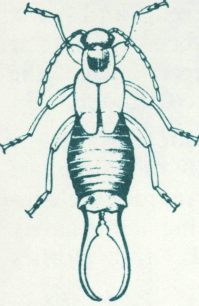
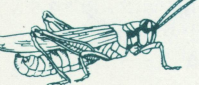
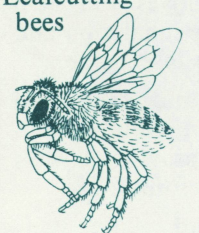





Pest	Injury and plants attacked	When to treat	Method of treatment
Scale insects	May be white or cottony, reddish brown plump bodied grayish white, oystershell shaped, elongate, pimple shaped or round from 1/20 to 1/4 inch in diameter. These scales suck sap from the plants causing leaves, twigs, branches, limbs or trees to die depending upon their severity.	Dormant before buds swell in the spring, spray. Summer sprays when crawler stages are active during last week of June and again in early July.	Dormant oil plus Diazinon or Dormant oil plus Calcium polysulphide, Conifers use Superior oil plus Diazinon in early spring. Diazinon or Malathion or Orthene.
Spider mites	Several different mites feed on the leaves of shrubs and trees, including conifers. They suck juices giving the leaves or needles a stippled or bronze appearance and cause them to drop prematurely. Mites can be detected by forcibly jarring a portion of the foliage over a white piece of paper; the mites will appear as tiny moving specks.	Spring through fall: To control active mites.	Where practical, hose damaged foliage daily to wash off mites or spray with Kelthane or Orthene or Diazinon.
Spiders	All sizes of beneficial spiders live on ornamentals. Control is not recommended unless their unsightly webs are a nuisance.	Foliage and soil around plants.	Wash off webs with garden hose daily and keep foliage clean or spray with Sevin or Diazinon.
Spittle bugs	Heavy feeding of these spittle covered insects produces stunting of growth and loss in vitality of plants.	Spring when first noticed.	Sevin or Methoxychlor or Orthene
Spruce gall aphids	Abnormal green to brown swellings or pineapple-like galls which usually encompass new growth at the tips of Colorado blue, Engelmann, Sitka, Norway and red spruces are caused by the feeding of two different aphids. Galls disfigure trees but do not kill them. Also occur on Douglas-fir needles as small cottony white spot. Damage to Douglas-fir minor.	Dormant: As terminal shucks begin to burst. Apply a second spray 2 weeks later.	Malathion or Diazinon or Dimethoate
Thrips	Thrips scar foliage and flower petals with their scraping mouth parts. They are slender insects, only just visible to the naked eye.	Just before bloom and repeat as necessary. Dust bulbs before storage.	Dimethoate or Malathion or Lindane or Meta-Systox-R or Orthene
Whiteflies	Tiny powdery adults and small oval, flat, scale like pale green nymphs feed on undersides of leaves sucking sap from plants causing them to turn yellow, wilt and may die.	Treat and re-treat in 5 days if problem is severe.	Orthene or Dimethoate or Malathion or Diazinon



Pest	Injury and plants attacked	When to treat	Method of treatment
Maple bladder gall 	Green, red, or black bladder-shaped galls on the upper leaf surface of silver, red and soft maples are caused by microscopic mites. Galls cause little injury to the tree.	Dormant: As buds swell in the spring or at leaf drop in the fall.	Calcium polysulfide or Thiodan
Mealybugs 	Small sluggish, white soft bodied insects cluster on the undersides of leaves discoloring and deforming foliage.	Spray in spring or summer.	Diazinon or Malathion or Dimethoate or Orthene.
Peach tree borer 	Whitish yellow larvae mine the crown of flowering plum, peach and cherry. Presence of blobs of gum and frass at ground level is an indication of their presence. Often trees are severely damaged or killed.	Mid-July and early August.	Apply Thiodan to trunk and lower scaffold limbs and allow spray to puddle around trunk.
Pear leaf blister mite 	Microscopic, pink colored, 4 legged mites spend winter beneath bud scales of apple, mountain ash and pear. They migrate in spring to begin feeding inside the leaves before they are fully opened. Infested areas are first green blisters, then red and finally brown. Each season there are many generations within the leaf tissues.	Dormant: As buds begin to swell. Summer: As soon as first green blisters are seen.	Calcium polysulfide or Dormant oil
Pear or rose slug 	Larvae sluglike, light green and skeletonize underside of leaves or make holes in leaves.	Summer when problem occurs.	Malathion or Sevin or Lindane
Rose curculio 	This red snout beetle causes injury by puncturing the flower buds so that the petals, when they unfold, are riddled with holes.	Spray prior to and during bud formation. Repeat applications as often as necessary.	Sevin or Malathion
Rose pith borer 	These small black wasps hollow the pith out of pruned stems of roses and other plants after pruning, to provision their nests with aphids, small flies and leafhoppers. This kills the stem back 4-6 inches.	Late spring.	Apply liberal amounts of asphalt or plastic base tree protective seal to pruning cuts.
Root weevils 	Whitish legless grubs feed on fibrous roots when they are small and can girdle the roots to severely weaken or kill the plants.	Treat soil before planting susceptible shrubs. Treat soil and base of the plant with excessive amounts of water with chemical in it during every June after problem is noticed.	Diazinon



Pest	Injury and plants attacked	When to treat	Method of treatment
<p>Elm leaf beetle</p> 	<p>Yellow to orange, ¼ inch long beetle with 3 black lines on wing covers and with 2 black spots behind the head. They eat holes in leaves. Larvae up to ½ inch long are dark colored with yellow markings and prominent body tubercles whose feeding destroys the lower surfaces of leaves. Elm trees are often completely defoliated by the attack from the summer generations of beetles.</p>	<p>When first larvae feeding occurs. Control of summer generations may be necessary if neighbors do not spray.</p>	<p>Sevin or Lindane spray. Thoroughly cover leaf surfaces.</p>
<p>European earwig</p> 	<p>Dark reddish brown, ⅝ inch long insect with forcep-like appendages at rear end of body. Holes eaten from tender leaves and blossoms at night.</p>	<p>When encountered throughout the season.</p>	<p>Spray soil with Sevin or Diazinon about plants, shrubs and lawns.  Foundation spraying of house in early summer will prevent household nuisance.</p>
<p>Grasshoppers</p> 	<p>Found on most all plants in years when they are abundant. Treat the new grass area as well as the plants you want to protect.</p>	<p>Treat when grasshoppers become abundant.</p>	<p>Sevin or Dursban or Malathion or Diazinon</p>
<p>Leafcutting bees</p> 	<p>These bees cut circular holes in leaf margins causing an unsightly, ragged appearance. They are very valuable pollinators and should be protected if possible.</p>	<p>Treat shrubs when change is first noticed. Spraying during hot weather could damage foliage.</p>	<p>Calcium Polysulfide</p>
<p>Leafhoppers</p> 	<p>Small, quick flying, long, wedge shaped, less than ¼ inch long with variable color. Leafhopper feeding causes a scratched or stippled effect and curling of leaves.</p>	<p>Early or late spring.</p>	<p>Malathion or Dimethoate or Meta-Systox-R or Diazinon or DiSyston. Foliar or soil applied.</p>
<p>Leafminers</p> 	<p>Feed between the two leaf surfaces where they make blisters or blotch mines or serpentine tunnels. Treat the foliage when the blotches first appear. Re-treatment may be necessary in 4-6 weeks.</p>	<p>Mid-May and if necessary, early July.</p>	<p>Lindane or Malathion or Sevin or Dylox or Orthene or Diazinon or Dimethoate or Meta-Systox-R</p>
<p>Leafrollers</p> 	<p>Green to brown active smooth bodied worms that feed and web new growth in spring and early summer.</p>	<p>Late spring when problem occurs.</p>	<p>Sevin or Diazinon or Malathion or Orthene</p>



## Rates of Application

These chemicals and their rates of application are recommended in this guide. Be accurate in your dilution rates; too much chemical may cause plant injury, too little chemical will result in poor control.

Chemical		Amount of insecticide per gallon of water
Calcium polysulfide	26% dormant summer 4% Dust	10 Tbl. 2 tsp. —
Diazinon	17% EC 25% EC	1 Tbl. 1 Tbl.
Dimethoate (Cygon)	23%	2 tsp.
Dormant oil	80% purified oil (for Scale insects)	2/3 cup 2/3 pint
DiSyston	1% Granular	—
Dursban	6% EC	1 Tbl.
Dylox	18% EC	2 Tbl.
Kelthane	2% EC	3 Tbl.
Lindane	20% EC	2 Tbl.
Malathion	57% EC 25% WP	1 tsp. 5 Tbl.
Mesorol	2% bait	—
Meta-Systox-R	6% EC	2 Tbl.
Meta-Systox-R	25% EC	2 tsp.
Orthene	15% EC	1 Tbl.
Pyrethrin	0.2% EC	3 Tbl.
Rotenone	0.5% EC 1.0% Dust	3 Tbl. —
Sevin	5% Dust 10% EC 27% EC 50% WP	— 2 Tbl. 1 Tbl. 2 Tbl.
Superior oil	98% purified oil dormant summer	 1/2 cup 1/3 cup
Thiodan	9% EC	2 Tbl.

**Pesticide Residues** — These recommendations are based on the best information currently available for each chemical listed. If followed carefully, residues should not exceed the tolerance established for any particular chemical. To avoid excessive residues, follow recommendations carefully with respect to dosage levels, numbers of applications and minimum interval between application and harvest.

**THE GROWER IS RESPONSIBLE FOR** residues on his crops as well as for problems caused by drift from his property to other properties or crops.

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We offer our programs and facilities to all people without regard to race, creed, color, sex, or national origin.

## General Warnings

All pesticides are poisonous to warm-blooded animals to some degree. They should be handled cautiously to prevent poisoning pets, livestock, wildlife, children or the user. When using any chemical, observe the following safe use procedures:

1. Always read the label before using any chemical, and carefully follow the directions given. Each time before opening the container note warnings and cautions.
2. Keep insecticides out of the reach of children, and pets. Pesticides should be kept in their original containers, outside the home, in a locked storage.
3. Do not spill concentrates or sprays on the skin or clothing. If they are spilled, remove the contaminated clothing immediately and wash body and clothes thoroughly.
4. Never smoke while spraying.
5. Avoid inhaling insecticide mists and vapors; and when directed on the label, wear protective clothing and a face mask. A handkerchief fitted to the face, coveralls and gloves will help prevent excessive inhalation and contact with the insecticide.
6. Wash hands and face and change to clean clothing immediately after spraying. Always wash clothing before re-use.
7. Cover food and water containers when treating around livestock or pet areas. Do not contaminate fish ponds.
8. Use separate equipment for applying hormone-type herbicides in order to avoid accidental injury to susceptible plants from contaminated spray equipment.
9. Always dispose of empty containers in trash or by burning or burying so that they pose no hazard to humans, animals or plants. When burning containers, avoid inhaling the smoke.
10. Observe label directions and cautions to keep undesirable residues off fruits and vegetables.