PURDUE UNIVERSITY
Extension ENTOMOLOGY
E-70-W

Landscape and Ornamental

Department of Entomology

FLOWER GARDEN PESTS

Timothy J. Gibb, Extension Entomologist

Enemies of the home flower garden seem to be as many and as varied as garden flowers themselves. Effective management depends, in part, on the type of pest causing the damage. Insect pests can be separated into groups having either sucking or chewing mouthparts; it is important for a grower to recognize the manner in which insects feed in order to effectively combat them.

In general, sucking insects are so tiny they usually are not noticed unless actually searched for because of tell-tale symptoms of the injured plant. Symptoms may include: wilting, stunting of the plant, twisting of the leaves, honeydew or sooty mold buildup on leaves and stems, or mottling and chlorosis of the leaves.

Insects with chewing mouthparts usually feed on leaves or bore into stems, roots or stalks. Leaf feeders remove plant tissue, often partially or completely stripping twigs and branches. Root and stem boring symptoms are less obvious and may include wilting, decreased vigor, or plant dieback. Further investigations are usually required to actually discover a borer.

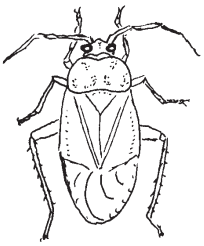
Still other organisms become pests only on occasion or because they are commonly encountered in the flower garden. Organization of this publication is based on differences in pest feeding behavior and symptoms caused by common flower garden insect pests. Numbers following each pest description refer to control recommendations listed in Table 1.

Table 1. Control Recommendations

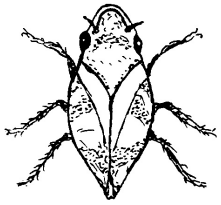
Cultural Controls	Chemical Controls
Strong, vigorous plantings will always go a long way towards minimizing the importance of pest problems. Such things as proper fertilization, irrigation, spacing, varietal selection, and sunlight are essential. Remember to inspect transplants for insects before purchase. 1. In many instances, removing infested plants, selective pruning or simply 'picking off the insects' will control the infestation. Because many pests are sluggish when cool, early morning is often the best time to eliminate light infestations through picking or trapping. 2. Spraying plants with forceful streams of water often washes off and kills smaller insects. 3. Removing weeds, plant residues, stones, boards, or other materials under which pests may hide often helps.	Many of the insecticides to control flower garden pests are contained in various commercial "all-purpose rose and flower dusts, available at most garden centers. 4. Carbaryl (Sevin) 5. Methaldehyde 6. Malathion 7. Orthene (Acephate) 8. Dimethoate (Cygon, De-Fend) 9. Pyrethrin 10. Rotenone 11. Dylox 12. Disolfoton 13. Resmethrin 14. Thiodan 15. Methoxychlor 16. *Bacillus thuringiensis* 17. Safer Insecticidal Soap

When plants become yellowed, speckled, have sooty mold or honeydew on the leaves and stems, growth becomes stunted, plant becomes generally unthrifty, new foliage fails to develop or develops abnormally, look for the following pests that suck plant juices.

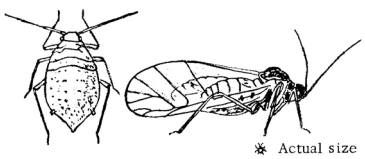
Plant bugs and leafhoppers inject a plant toxin while feeding which may either deform or destroy flower buds. They also may cause conspicuous, depressed spotting of the leaf. Leaf tips generally wilt first. Plant bugs often are a tarnished copper color with yellow and black dashed markings and are up to 1/4 inch in length. Use controls 4, 6, 7, 8, 9, 12, 13,17.



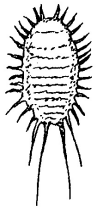
Spittle bug feeding can yellow or stunt the growth of flowers and plants. Spittlebugs usually occur on plant stems or leaf petioles where they cover themselves in a very characteristic white, frothy material. They are usually not numerous enough to cause much injury and hence may simply be picked from infested plants. Use controls 1, 15.



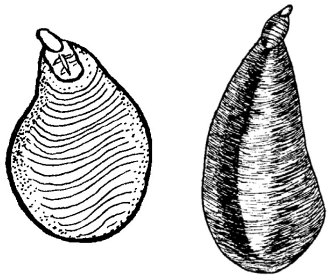
Aphids (plant lice) cause poor growth, stunted plants, and curled or distorted leaves. 'Honeydew', a shiny sticky appearing substance excreted onto leaves, often remains after the aphids have left. Honeydew can also be used as a food base for sooty mold which may impair photosynthesis. Aphids cluster on stems, buds, or on the undersides of tender leaves. They are usually white, green, or black, 1/16 to 1/8 inch long, soft-bodied and pear-shaped, with long legs and antennae. Most aphids in the cluster are wingless. Those that do possess wings hold them rooflike over the body when at rest. Some aphids cover themselves with a waxy or a powdery excretion. Use controls 2, 6, 7, 8, 12, 17.



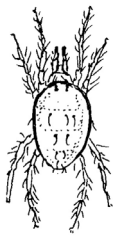
Mealybug feeding on plant leaves and stems may kill or stunt plants. They usually congregate where leaves attach to the stem or around major veins on the undersides of leaves. Sooty mold can also build up on excreted honeydew. Mealybugs are slow moving, wingless, often pinkish-orange insects that appear dusted with fine white flour because of their waxy covering. They grow to be about 3/16 inch long and sometimes have long waxy filaments extending from the rear of the body. Use controls 2, 6, 7, 13, 17.

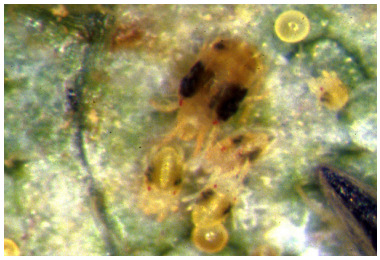


Scale insects stunt plant growth and excrete honeydew which can interfere with plant photosynthesis. Once immature scales have selected a feeding site on the leaf or stem, they attach themselves permanently and become covered with a protective shell-like covering. This gives them the appearance of a scab or a scale (certainly not an insect). Scales range from 1/16 to 1/2 inch in length. They may vary from oval to hemispherical or even oystershell-like in shape. Scale insects are difficult to control because of the protection provided by their outer covering. Timing controls to the crawling (non-protected) stage is critical. Non-chemical controls often include pruning and destroying infested plant parts. Use controls 1, 4, 6, 17.



Mite feeding initially causes yellow speckled areas to appear on the tops of leaves. As severity increases, the leaves take on an overall bronzed or yellow appearance, the flowers fade, and the plants may die. Mites usually appear first on the undersurfaces of leaves and then spread to other parts of the plant. Spider mites are the most common flower garden mite pest especially when conditions are dry and warm. The

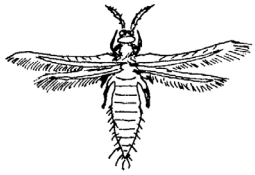




8-legged adult mites are oval and have a greenish, reddish or yellowish body. Individual mites are barely visible with the naked eye but may be noticed moving through their light, silky webbing (see also Extension Publication E-42-W "Spider Mites on Ornamentals"). Use controls 2, 6, 8, 12, 17.

Whiteflies are small, white, winged insects that are usually concentrated on the undersurface of the leaves. When disturbed, they fly quickly, but usually not far. Honeydew and sooty mold are often associated. Use controls 2, 6, 7, 9, 12, 13, 17.

Thrips suck juices from flowers and leaves causing silver streaks speckled with small black excrement. Leaves also may appear blotched or drop off, and flowers may become distorted or may fail to open. Thrips are tiny, active insects that are usually tan or brown to black in color. The young are less active, may appear yellowish or orange in color but are equally as damaging. Use controls 2, 6, 7, 8, 12, 13.



When plants or branches suddenly begin to wilt, dieback or break over, search for signs of stem, stalk and root borers.

Several species of **caterpillars** and **beetle larvae** have the insidious habit of boring and tunneling into stalks and stems, especially of fleshy thick-stemmed plants. Tunneling through internal stem tissues often disrupts water-conducting vessels which causes wilting of leaves and weakening of plant stems. To confirm the presence of boring insects, stalks and roots should be split lengthwise to reveal tunnels.

Common stalk borer is often a serious pest in flower gardens. It grows to be about an inch in length and has a dark brown or purplish band around its middle.

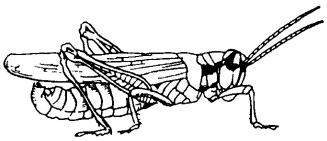
Tumbling flower beetle is a relatively newly identified stem borer in Indiana. The incidence of damage caused by larvae boring into flower stems, especially of marigold, seems to be increasing.

Woody-stemmed flowering plants also may be attacked by stem borers. Common examples include the Lilac borer and the Rose stem borer. Other borers may inflict damage to the roots and crowns as well as to the lower stems of flowers. Iris borers and Clematis root borers are common examples.

Unfortunately, since borers feed inside the plant, contact chemicals are of limited value as controls. The best remedy is often clean cultivation, including removal and burning of the infested plants. Borers can also be removed by slitting the stalk or by pinching the stem of the plant where the borer is working.

When leaves become skeletonized, ragged or riddled with holes, or young plants are found cut at their base, suspect the following leaf-feeding pests.

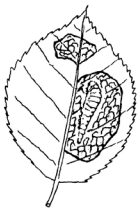
Leaf-feeding is easy to diagnose in the flower garden. **Grasshoppers** (use control 4), blister beetles (use controls 4, 9, 15), leaf beetles (use controls 4, 9, 10), and many leaf-feeding caterpillars (use controls 1, 4, 7, 15, 16) are easily recognized pests often 'caught in the act' of eating leaves. Feeding typically progresses from the edges inward and produces a very ragged-appearing leaf. This damage can reduce photosynthesis and thus plant vigor if unchecked. Because damage is often similar, the insect found associated with the injury should be collected and identified before control decisions are reached. Leafcutting bees cut large neat circular holes from leaves, especially roses. Usually damage is not severe enough to warrant treatment. Use controls 1, 3, 4, 6, 11.



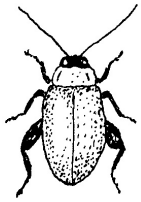
Cutworm damage (partially-eaten leaves, flowers, or buds) is often noticed before the larva is actually found. Often young plants are cut off at the soil level and dark pellets of excrement are left on the remaining plant tissue. Cutworms feed at night and usually hide in the soil or under heavy leaf litter during the day. The naked caterpillars can be very small to almost 2 inches in length and curl up when disturbed. Some

are solid in color, some are striped lengthwise or crosswise and still others are mottled with various combinations of red, brown, yellow, green, and dark gray. Transplants can be protected with paper or metal collars around the stems at ground level. Use controls 1, 3, 4, 11.

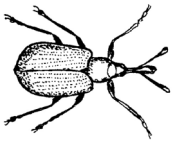
Rose slugs may reduce leaves to a skeleton of veins. They appear as translucent, green, slugs, about 1/3 inch in length and usually can be found in the evening or the early morning hours on the undersides of damaged leaves. Use controls 1, 4, 6, 10, 16.



Flea beetles (though more often found in vegetable gardens) also skeletonize the foliage of flower garden plants by stripping the upper leaf layer. Most are small (1/5 inch), usually metallic, beetles which jump long distances when disturbed. Use controls 4, 9, 10, 12, 15.



Rose curculios chew holes into buds, leaves and stems resulting in riddled flowers and foliage. Curculios are black, long-snouted beetles about 1/4 inch long that characteristically drop from the plant when approached. Use controls 4, 7, 15.



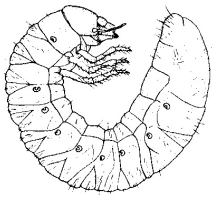
Leaf miners feed on tissue between the leaf layers causing blotch or serpentine mines or trails. Leafminers may be larvae of small moths, flies or beetles. Injury is usually aesthetic only and often need not be treated chemically. If pruning is not practical, use controls 4, 6.

Leaf tiers and leaf rollers are unique leaf feeders in that they fold, tie, roll, or otherwise modify the leaves that they feed upon. The larvae feed from inside these protective little houses but can easily be discovered by picking or pulling the leaves apart. Use controls 1, 4, 7, 15, 16.

Symptoms of root damage in plants are difficult to distinguish from those due to nutrition or irrigation deficiency. Plants may appear wilted or very sickly in color and growth. Root feeding pests can be discovered by sacrificing the plant and examining the root system for feeding scars.

Wireworms feed on plant roots and, as their name suggests, are shiny, smooth, cylindrical, and wire-like in appearance. They can become a serious pest of many flower garden plants and should be treated if noticed during tillage in the spring. Use control 5.

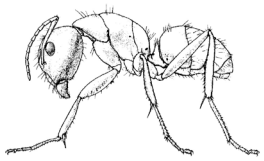
White grubs remain below ground and feed on the root systems of plants including garden flowers and lawns. These are often the immature forms of May or June beetles and may come in various sizes. All are a milky-white color and have a distinctive 'C' shape (also see Extension Publications E-75-W "Japanese Beetles in the Urban Landscape", E-61-W "Turf-grass Insect Management", and E-259-W "New White Grub Pests of Indiana"). Avoid planting flowers where turf has been growing unless the soil has been examined and found to be grub free, or pesticides have been applied. Use control 11.



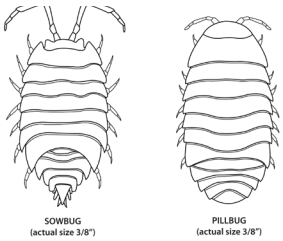
Occasionally, pests or other insects may be encountered when planting, weeding or admiring the flower garden. These can sometimes become damaging when in high numbers (occasional pests) but usually only irritate the gardener and not the garden.

Psocids feed on decaying vegetable and animal matter in undisturbed locations in the home or garden. Other than sometimes being a nuisance to the gardener because of their large numbers, the yellow-bodied insects are not harmful. Psocids may reach 1/16 of an inch in length. Reducing damp breeding sites (i.e., wood, cardboard and paper) is the best practical control available.

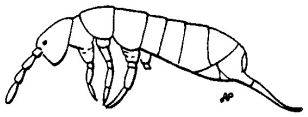
Ants are usually not troublesome in flower gardens except when certain species dig up newly planted seeds or seedlings and carry them off. They are usually encountered either as a swarm or colony which nests in a nearby location, often under sidewalks or along house foundations. Most ants are 1/16 to 1/2 inch in length, are red, brown, yellow, or black in color, and have narrow necks and waists. Some ants are attracted to honeydew produced by scale, aphid and mealybug feeding (also see Extension Publication E-22-W "Ants"). Use controls 4, 9.



Sowbugs and Pillbugs usually feed on decaying organic matter but sometimes attack young seedlings and tender plant parts. Both sowbugs and pillbugs have segmented, shell-like bodies with many legs. They are gray to brown and appear as flattened ovals 1/4 to 1/2 inch in length. They are most active at night. When disturbed, pillbugs roll up in a ball while sowbugs scurry for cover. Both prefer areas rich in organic content and high in humidity. Use controls 3, 4, 6, 9.



Springtails are more of a nuisance pest than a damaging one, although they have reportedly fed on seedlings in flower gardens. The tiny pests usually measure less than 1/5 inch in length and range in color from white to purple or black. They characteristically 'spring' when disturbed. Springtails feed on decaying organic matter and usually only are noticed when in very large populations on the surface of the ground or on the foundation of a building. Use controls 3, 8, 17.

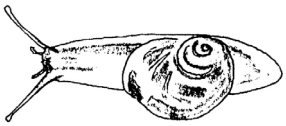


Millipedes are slow-moving, worm-like creatures with many short legs and have fairly hard-shelled bodies. They grow to about 1-1/2 inches in length and are often found in the flower garden under rock or board shelters. They are most active at night and assume a coiled position when disturbed. Millipedes are most common where there is plenty of moist organic material on which they feed. They usually are of no consequence in the flower garden, but may, on rare occasions, feed on roots, bulbs, fleshy stems and growing tubers of plants and chew large ragged holes in plant foliage (also see Extension Publication E-55-W "Millipedes, Sowbugs, Pillbugs"). Use controls 3, 4.

Slugs and snails are always unwelcome intruders in flower gardens. They may range in size from 1-2 inches or more in size. They feed at night only, but leave tell-tale silvery slime trails wherever they go. They usually become a problem in damp areas, often hiding under decaying boards or bricks. Removal of such shelters and hideouts should be the first efforts in achieving their control (also see Extension Publication E-45-W "Slugs in Homes, Gardens, and Greenhouses"). Several snail and slug baits are available. Use control 5.

Slug

Snail



Gall-making pests disrupt plant hormones and cause localized swellings in which the insect live. Although the swellings produced are somewhat of an eye-sore, they are seldom a serious threat to the health of the plant. Chief among the gall-formers are the cynipid wasps, the cicidomyiid midges, the aphids and the mites. Pruning and burning of infected parts is usually the only control measure available for galls.

CONTROL RECOMMENDATIONS

In flower gardens pest impact is usually measured in terms of 'aesthetic injury' which is difficult to quantify. For that reason a listing of treatment thresholds based on pest density is not available.

Several factors should be considered when deciding whether or not to 'intervene'. Some questions that ought to be considered include:

- How important is the damage to the overall appearance of the flower garden?
- Will the plants recover enough after the pests are eliminated to once again contribute to the overall appearance of the garden?
- Will the pests spread to other plants?
- Are the pests still actively damaging the plants or have they long since left or matured?
- Are insecticides the best overall management tactic?

Not all insects found in the flower garden are harmful. Many will not cause injury and others are actually beneficial either through pollinating, recycling of organic matter, or protecting plants against other insect pests.

If insecticides are chosen, application of foliar sprays late in the evening is often advised because winds are usually less blustery, many pests are exposed, and bees are less likely to be active in the area.

Some plants are more sensitive to certain chemicals than others. It is advisable to 'test' the chemical on 1 or 2 plants before using generally. If wilting or curling occurs, discontinue use and select an alternative control measure.

April 2018

This work is supported in part by Extension Implementation Grant 2017-70006-27140/ IND011460G4-1013877 from the USDA National Institute of Food and Agriculture.

PURDUE UNIVERSITY | Extension ENTOMOLOGY

1-765-494-8491 · www.extension.purdue.edu

Order or download materials from www.edustore.purdue.edu