Houseplant Insect Control

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Houseplants are an important element in most indoor environments. We rely on them to add beauty and interest to our homes as well as to public spaces such as office buildings, restaurants, and theaters. Unfortunately, houseplants may be troubled by insects and related pests.

Sometimes houseplants are infested by pests they pick up during production. No business knowingly sells infested plants, but insects and mites and their eggs are so small they often go unnoticed. Houseplants often become infested when they're set outdoors in summer. Even if plants remain indoors, they may be attacked by tiny pests that move through screens or open windows.

Regardless of how these pests find your houseplants, they're usually manageable, often by nonchemical means - if you're alert to signs of trouble and take steps to control the pests in a timely fashion.

Prevention and Detection

Prevention is the first line of defense. Check houseplants before you buy them, then isolate them from others for two or three weeks to allow undetected problems to become obvious. It's also a good idea to check plants very carefully each fall, regardless of whether they were outdoors for the summer.

Choose plants that will thrive in the amount of light you can provide. A houseplant that's stressed from inadequate light is a more likely candidate for insect problems than one that's growing vigorously, or at least steadily.

Wash smooth-leaved houseplants regularly to prevent a build-up of dust and grime. Dust filters light before it reaches the leaf surface and can also attract and harbor insects and spider mites. It looks bad, too.

Clean large leaves and stems with a moist, soft cloth. If plants have many tiny leaves, spray them with barely lukewarm water or wrap foil over the soil, then tip each plant upside down and swish it through a tub of water to which you've added a few drops of mild liquid dishwashing liquid.

Never use a feather duster to clean your houseplants. It's too easy to unknowingly transfer tiny insects, mites, or eggs from one plant to another.

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Always use sterilized potting soil; garden soil may harbor insect and disease pests. Potting soil must also drain readily. When roots sit in waterlogged soil, they're likely to rot and serve as a food source for soil scavengers that live off decaying organic matter.

Check houseplants for evidence of insects whenever you water them. You'll stand a better chance of controlling these pests before they're too numerous.

Inspect both tops and undersides of leaves, particularly any that appear speckled or mottled. This may be evidence of a pest problem, though there are other causes of discoloration. A ten-power hand magnifying lens will prove helpful when looking for tiny pests, eggs, and cast skins.

Watch for honeydew, a shiny, sticky substance secreted by aphids and scale insects. You'll find it on the upper surface of leaves, as well as on table tops and other items under the plant.

Nonchemical Control

Many houseplant insect problems can be controlled using nonchemical methods, particularly if the infestation is light.

Washing: Use a soft cotton cloth dipped in mild detergent solution (1/2 teaspoon per quart of lukewarm water) to wipe small numbers of aphids, mealybugs, scales, or mites off plants with smooth leaves. You can also dislodge a light pest infestation with a forceful spray of lukewarm water.

Handpicking: It's easy to remove and dispose of large pests such as cutworms, caterpillars, and millipedes that infest houseplants outdoors in summer. Earthworms can be driven out of the soil by setting the pot in a tub of water to saturate it. You may also remove small numbers of scale insects or mealybugs with a fingernail file or pen knife.

Sticky traps: Sticky traps are flat cards with glue on the surface. Usually colored yellow, they capture insects that land on them. While these traps can reduce the number of flying insect pests, you can't eliminate an insect problem by using just sticky traps. Sticky traps are most useful when used to detect the presence of whiteflies, fungus gnats, winged aphids, and thrips which then alerts you to take additional action.

Pruning: An insect infestation may be confined to a few leaves or branches or may be particularly bad in those locations. Eliminating the worst branches will make it easier to control pests on remaining parts of the plant. If an infestation is truly isolated, pruning may be all the control that's needed.

Give up: When a houseplant is heavily infested and badly damaged, the best course of action is to throw the plant away. Minimize your losses and avoid exposing other plants to the same pest problem. If you are reluctant to discard the plant, prune it practically to the soil. If it resprouts, watch new growth carefully for signs of infestation.

Insecticides

If you still have an insect problem after trying nonchemical methods, consider using an insecticide (**Table 1**). Insecticides are most commonly found as aerosol or ready-to-use liquid products. Some are available in ready-to-use granular form or as liquid concentrates. They're sold at nurseries, garden centers, building supply stores and discount variety stores. These products are also available for purchase through the internet.

Selecting an insecticide can be a challenge. There are increasingly fewer on the market, which makes it difficult to find an insecticide that's very effective.

There is a larger selection of insecticides available for outdoor use. Plants can be taken outside and treated (if the label permits) as outdoor ornamentals.

Read the fine print to make sure the insecticide contains the active ingredient you're looking for. Don't assume houseplant insecticides are safe for all your plants. Check each label for the list of plants the product is registered to be used on. Treating your plant with an insecticide that isn't labeled for it could result in considerable damage.

If you use a product that requires dilution with water, mix only as much as you expect to use in one day, then be sure to use it that day.

Spray houseplants in a well-ventilated area. A porch or garage works well in summer; a basement might be best in cold weather.

Never use any insecticide on a houseplant that's moisture-stressed. To avoid moisture stress, water the soil a day or two before applying insecticide. Spray your plant thoroughly, especially under the leaves, then keep it out of direct sun a full day after treatment.

Table 1 lists the common names of active ingredients found in insecticides available to treat houseplants. You will find these insecticide names on the label under the heading *Active Ingredients.* These names are often listed in fine print, so look carefully.

Table 1. Active Ingredients of Insecticides Available for Houseplants.

Active Ingredients	Pests	Comments
bifenthrin	spider mites, scale, mealybugs, whiteflies, thrips, aphids	
permethrin	scale, mealybugs, whiteflies, thrips, aphids	
resmethrin	scale, mealybugs, whiteflies, thrips, aphids	
pyrethrins	mealybugs, whiteflies, scale, thrips, aphids	no residual, only kills on contact
imidacloprid	mealybugs, scale, aphids	only available in potting mix from Bayer Advanced
disulfoton	mealybugs, scale, aphids	usually has a disagreeable odor; do not use unless plant is actively growing
potassium fatty acids (i.e. insecticicidal soap)	scale, aphids, thrips, spider mites	sold specifically as an insecticide; no residual, kills on contact
various combinations of oil extracts (e.g. thyme, canola, clove, sesame, cotton seed, garlic oils)	scale, thrips, aphids, whiteflies, spider mites	
Bacillus thuringiensis H-14 (e.g. Knock Out Gnats)	fungus gnats	bacterial that specifically attack fungus gnat larvae; available primarily by mail order

Caution: Always read pesticide labels carefully before buying and again before using these products. This is especially important as the availability and recommended use of specific pesticides may change from year to year. The label is the final authority on how you may legally use any pesticide. Store pesticides in a locked area out of the reach of children. For questions about proper disposal of old or unused pesticides, contact your local county extension office.

Houseplant Insect Pests

Spider Mites

Spider mites are among the most serious houseplant pests. Left untreated they can multiply rapidly, causing injury, defoliation and plant death. They're not true insects, but are more closely related to spiders and ticks.

These mites are oval shaped; yellowish or greenish in color. They're difficult to see clearly with the naked eye, measuring only 1/50th of an inch. Magnification can reveal amber-colored mite eggs, whitish cast skins, and black fecal specks. To verify spider mite presence, place a sheet of white paper under discolored leaves. Tap the leaves, then watch for tiny moving creatures on the paper.

Spider mites thrive in dry, warm conditions. They make their way indoors in summer and sometimes as hidden guests on Christmas trees and greenery in December.

Mites first feed on the undersides of leaves, then expand their territory as populations increase, moving from stem to stem and onto nearby plants by means of fine webbing. People can also spread them accidentally on their hands, clothing, and watering cans. Always wash your hands and any tools you've used after working with infested plants.

Spider mites damage plants by piercing leaf tissue with needle-like mouthparts, feeding on sap. Usually the first sign of spider mites is a mottled or pin-prick yellow discoloration on the undersides of leaves.

Control options: Washing, bifenthrin, insecticidal soap, plant oil extracts (at least two applications sprayed once every 7 - 10 days are usually necessary).

Figure 1: Spider damage on palm (Jeff Hahn)

Figure 2: Spider damage and webbing on ivy (Jeff Hahn)

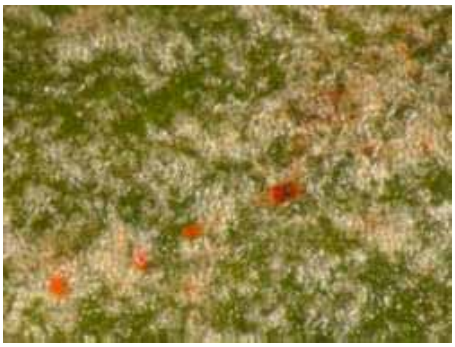

Figure 3: Close-up of spider mites (Phil Pellitteri, Univ. of Wisconsin)

Scale Insects

Scale insects don't look like typical insects. Adults secrete a waxy shell-like covering which gives them the appearance of brown or gray bumps. They're round, oval, or oyster shell-shaped, roughly 1/16 to 1/8 inch in diameter. Tiny juveniles or "crawlers" have legs and are mobile; they're more vulnerable to pesticides than the stationary adults, but are barely visible without magnification.

Scales are usually found on plant stems and the undersides of leaves especially along mid-veins. They use needle-like mouthparts to feed on plant sap, secreting sticky honeydew as an end product of that process. Heavy feeding causes leaves to yellow and drop, slows growth and stunts plants.

Control options: Washing, physical removal, bifenthrin, permethrin,resmethrin, insecticidal soap,pyrethrins, disulfoton, imidacloprid, plant oil extracts (at least two to three applications sprayed once every 10 - 14 days are usually necessary). Because their waxy covers are so impervious to insecticides, add a few drops of liquid soap or detergent to help the material slide under the edges of the "shells."

Figure 4: Scale (Phil Pellitteri, Univ. of Wisconsin)

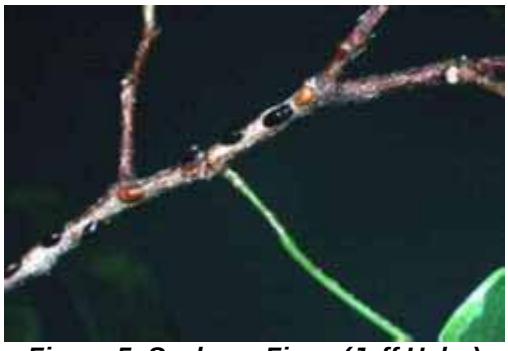

Figure 5: Scale on Ficus (Jeff Hahn)

Mealybugs

Mealybugs are soft-bodied insects, about 3/16 inch long; easily visible without magnification. Their bodies have white, waxy filaments protruding from the tail end, and look as though they've been dusted with flour. Mealybugs can be confused with powdery mildew, and sometimes are observed as "tiny cottony clusters" on stems and leaves.

Figure 6: Mealybugs on philodendron stem (Jeff Hahn)

Mealybugs are most common along veins on the undersides of leaves and at axils, where leaves join stems. Some mealybugs may also be found below the soil surface on the main stem. They pierce plant tissue with sharp mouthparts, then suck the sap, which results in yellowing, leaf drop, and poor growth.

Control options: Washing, physical removal, disulfoton, bifenthrin, permethrin, imidacloprid resmethrin, pyrethrins (at least two to three applications sprayed once every 10 - 14 days are usually necessary).

Thrips

Thrips are very small (about 1/16 inch long) and slender; usually tan or dark colored. Immature thrips are white, yellow, or orange. Adults can fly, jump, or run quickly. They are difficult to see without a hand lens, though they may look like little threads on the plant.

These pests may not survive long inside. However, some types of thrips are capable of living indoors on houseplants year-round.

Thrips feed by scraping leaves or flowers with their rasping mouthparts, then sucking the fluid that's released. Damaged leaves develop irregular silvery streaks or splotches. Flowers become streaked or distorted. Where feeding is heavy, you may also see small shiny black drops of excrement on the leaves.

Control Options: Washing,bifenthrin, permethrin, resmethrin, pyrethrins,insecticidal soap, neem oil, plant oil extracts (at least two applications sprayed once every 5 days are usually necessary).

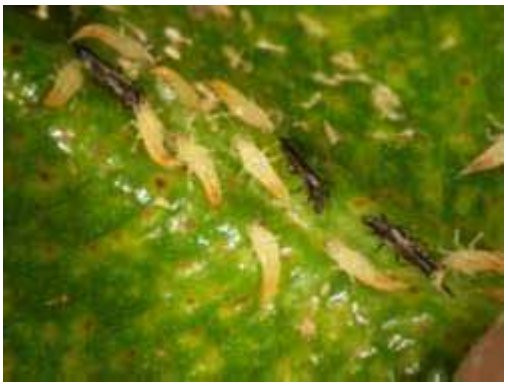

Figure 7: Adult thrips (dark-colored) and immature nymphs (light-colored) (Phil Pellitteri, Univ. of Wisconsin)

Figure 8: Thrips damage (note black excrement) (Iowa State Univ.)

Springtails

Springtails are very small (about 1/16 inch long), slender white or gray insects. They're commonly seen in the soil or in saucers beneath potted houseplants. Springtails jump when they're disturbed, so they're particularly noticeable right after you water.

Springtails are scavengers, feeding on decaying roots and fungi. They prefer to live in damp potting soil, especially a mix containing a high percentage of peat. Often associated with houseplants that are kept quite moist, they rarely, if ever, damage the plants. They're just annoying.

Figure 9: Close-up of springtails (Phil Pellitteri, Univ. of Wisconsin)

Control: Water thoroughly, but let soil dry as much as possible without letting plants wilt.

Fungus Gnats

Adult fungus gnats are small (1/16 **-** 1/8 inch long) insects you may see flying around houseplants or resting nearby **where they** frequently **are** mistaken for fruit flies. The legless, worm-like larvae live in damp soil and are scavengers with habits similar to springtails, causing little or no damage.

Control options: Water thoroughly, but let soil dry as much as possible without letting plants wilt, *Bacillus thuringiensis* H-14.

Figure 10: Fungus gnat adult (Dept. of Entomology, Univ. of Minn.)

Figure 11: Fungus gnat larvae on poinsettia (Mike McDonough, Univ. of Minn.)

Whiteflies

Whiteflies are not true flies. They're more closely related to scales, mealybugs, and aphids. These pests are more commonly associated with plants growing in greenhouses than those growing in homes.

Adults are very small (about 1/16 inch long), white moth-like insects. They're easily disturbed, fluttering up when you water or handle a plant they're clinging to. Imature whiteflies are even smaller. They're flat, oval, scale-like insects normally found on the undersides of leaves. It's not easy to spot these pale insects.

All stages of whiteflies feed on plant sap, using their piercing-sucking mouthparts. Infested leaves can yellow and drop, reducing plant vigor, but usually not killing the plant.

Control options: Washing, bifenthrin, permethrin, resmethrin, pyrethrins, neem oils, plant oil extracts (at least three applications sprayed once every 5 days are usually necessary).

Figure 12: Whitefly adults (Jeff Hahn)

Figure 13: Whitefly nymphs (Phil Pellitteri, Univ. of Wisconsin)

Aphids

Aphids are easy to see but they are not generally common on houseplants. They're small (1/16 - 1/8 inch long) with pear-shaped soft-bodies, conspicuous legs, and antennae. Aphids found on houseplants are usually green, but could be black, brown, gray, yellow, red, or purple.

Look for aphids clustered on stems just below flower buds or newly opening leaf buds, as well as on flowers and the undersides of leaves. Aphids pierce plant tissue, suck sap, and excrete sticky honeydew similar to that of scale insects.

Control options: Washing, bifenthrin, permethrin, resmethrin, insecticidal soap, pyrethrins, neem oil, plant oil extracts, disulfoton, imidacloprid.

Figure 14: Aphids infesting plant bud (Phil Pellitteri, Univ. of Wisconsin)

Figure 15: Aphids infesting hibiscus stem (Jeff Hahn)

Cyclamen Mites

Cyclamen mites are not true insects but are more closely related to spiders and ticks. They inhabit protected portions of plants, especially young tender leaves, buds, and flowers, but are not as common as other pests previously described.

These mites are extremely small and semi-transparent; impossible to see without magnification. They're spread by leaf to leaf contact and on hands and clothing. Infested leaves are stunted, brittle and often hairy; flower buds may be deformed and streaked. Sometimes injured leaves, buds and flowers may turn black. Stems of infested ivy plants are often leafless or have small hairy leaves. African violets typically have small, cupped hairy leaves in their centers.

Control options: Throw away infested plants.

Figure 16: Cyclamen mite damage on violet (Phil Pellitteri, Univ. of Wisconsin)

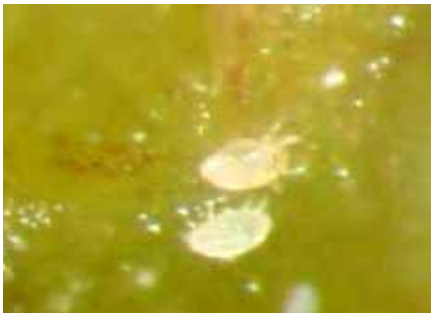

Figure 17: Close-up of cyclamen mites (Phil Pellitteri, Univ. of Wisconsin)