Home & Garden
Pest Management Guide
For British Columbia

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Chapter 18
Pests of House Plants

Pests of House Plants

This chapter describes common insect and disease problems of house plants. Management information describes preventative and cultural measures that may control the pest. Try these first. Sometimes the management information also mentions pesticides. When more than one pesticide is mentioned, the least toxic pesticide is listed first. See the “Pesticide Table” in Appendix I for information on available home garden pesticides. Also read Chapter 8 "Using Pesticides to Manage Pests". It contains important safety information.

If it is necessary to spray plants with anything other than water or soap, they should be moved out of the house to spray them. Leave plants outdoors until the spray has dried and the spray odour has dissipated before moving them back into the house.

Insects

Aphids

Aphids can attack a wide range of plants. They are small (2-3 mm long), soft-bodied, pear-shaped insects that feed on plant sap. Aphids can be winged or wingless, varying in colour from green to yellow, brown or black, usually occurring in clusters or “colonies” on the underside of leaves and on new shoots.

Affected plants can be wilted with yellow, twisted and curled leaves that eventually drop off. Plant growth can be stunted and new buds malformed. Aphids secrete a sticky substance called honeydew, which forms a shiny film or droplets on leaf surfaces. An undesirable black sooty mould can grow on the honeydew (see Sooty Mould, page 18-9). In addition, aphids can transmit many viruses to plants during feeding.

Oleander aphids

Aphid honeydew on leaves

Management:

Examine any new plants coming into the house. Aphids are best controlled as soon as they are noticed before plant leaves begin to curl and aphid colonies develop. Hand picking or thoroughly spraying undersurfaces with water will remove aphids. Repeat when aphids reappear. Avoid over-fertilizing with nitrogen because succulent growth attracts aphids.

Biological control using an aphid predator midge or parasitic wasp available at some garden centers is another non-chemical option for aphid control.

A variety of insecticides can be used against aphids but note that some house plants are sensitive to pesticides. Leaf burning may occur when liquid formulations in solvent carriers are used, especially if too much is applied. First try applying the insecticide to only a few leaves and then wait at least four days for any damage that might develop. If no damage occurs, that insecticide is safe to use on that plant. When insects are seen and spraying is required, try insecticidal soap. If using other products, it is best to remove plants from your house before spraying. Use appropriate pesticides for house plants and apply according to label directions. After the spray has dried and the odour has dissipated, return the plants to the house.

Fungus Gnats

Fungus gnat, photo courtesy of Johnny N. Dell, Bugwood.org

Fungus gnat larvae, photo courtesy of David Cappaert, Bugwood.org

These flies are grey or black, delicate and about 3 to 6 mm long. The larvae are white maggots with black heads, found in decaying plant matter. They thrive in moist soil. The adults are a harmless nuisance, but the maggots can injure the roots of young plants. Affected plants appear stunted, and foliage may drop.

Management:

The most effective control is to remove the plants from the infested soil, thoroughly wash the roots and repot in fresh potting soil with better drainage. Reduce the amount of water and let the soil dry between waterings. Yellow sticky traps may be used to catch low populations of adults. Predatory mites specific for fungus gnat control can be applied to the soil to control larvae. These are available at some garden centres.

Other options include drenching the soil with insect-parasitic nematodes, or insecticidal soap prepared according to label directions. Ready-to-use dusts of diatomaceous earth (silicon dioxide) applied to the soil surface may also be effective.

Mealybugs

Mealybugs are tiny, woolly, white insects that resemble little bits of fluff. They are found on stems and undersides of leaves, especially where the plant branches. They are protected by a white, waxy covering. Like aphids, they excrete honeydew that forms sticky patches and acts as a medium for the growth of black, sooty fungus (see Sooty Mould, page 18-9). Mealybugs suck plant sap, causing stunted growth and potentially, the death of the plant.

Mealybugs

Management:

Do not purchase infested plants. Examine any new plants coming into the house. Mealybugs are best controlled as soon as they are noticed before colonies build up. Hand picking or thoroughly spraying undersurfaces with water will remove mealybugs. Repeat when mealybugs reappear. Avoid over-fertilizing with nitrogen because succulent growth will promote mealybug egg production.

Biological control using a predatory midge or parasitic wasp available at some garden centers is another non-chemical option for aphid control.

Insecticides can be used against mealybug but note that some house plants are sensitive to pesticides. Leaf burning may occur when liquid formulations in solvent carriers are used, especially if too much is applied. First try applying the insecticide to only a few leaves and then wait at least four days for any damage that might develop. If no damage occurs, that insecticide is safe to use on that plant. When insects are seen and spraying is required, try insecticidal soap. If using other products, it is best to remove plants from your house before spraying. Use appropriate pesticides for house plants and apply according to label directions. After the spray has dried and the odour has dissipated, return the plants to the house.

When an interior plant is heavily infested with mealybugs and your control efforts have not been successful, consider discarding the plant and purchasing an insect-free plant before the pests spread to other houseplants.

Mites

Two-spotted spider mites on a houseplant

Many mites are too small to be seen without the aid of a hand lens. It is often easier to see their damage, and in the case of spider mites, their webbing. When populations are high, spider mites spin fine webs between the veins of the leaves to form a canopy under which they feed. Mites suck plant juices, giving the leaves a yellowish speckled appearance. Eventually, the leaves turn brown and fall off. The whole plant appears stunted and new leaves and buds may be deformed. Two-spotted spider mites can become a problem in greenhouses. Cyclamen mites are a common pest of ivy and African violets, deforming or inhibiting growth of new leaves. Blackening of the infested parts may occur. Any plant growing in a warm, dry location is susceptible to mite attack.

Management:

Carefully examine new plants coming into the home or greenhouse. Consider discarding heavily infested plants before the mites spread. To prevent or slow the buildup of mite populations, avoid placing susceptible plants in hot, dry locations. Regular misting will slow mite development. Examine the lower leaf surfaces periodically with a hand lens. Once detected, management measures should be taken immediately because mites can multiply rapidly. Thorough washing of the plant with insecticidal soap will often halt the problem. Other pesticides may be appropriate for mite control; check labels and use according to label directions.

Biological control agents are available for mite control. They can be purchased at some garden centres. Apply live mite predators according to label instructions. It takes some time after predators (which are also mites) are released for them to control the pest mite populations, but once established, predators can keep mite populations under control for a long period of time. To keep the predators from leaving a houseplant in a pot, place the pot in a pan above a moat of water. To be successful, regular misting is necessary as indoor environments are usually too dry for predator mites.

Scales

Scale insects

Scale insects are round or oval, up to 4 mm in diameter with a waxy, shell-like covering. Colours range from tan to brown or black. They are found on the stems and leaves where they suck plant juices causing poor, stunted growth. Scales prefer tough, leathery plants. The honeydew excreted by scale insects gives the leaves a shiny, sticky appearance. Sooty mould grows on the honeydew (see Sooty Mould, page 18-9).

Scale "crawlers" (nymphs) emerge from the scales (females) in the spring and summer and move about to find feeding sites on the plant. Crawlers are small white or yellow and about the same size as mites.

Management:

House plants that have scales may be set outside in late spring to allow natural enemies to attack them. Scrub the scales off with a wet toothbrush or daub them with a Q-tip dipped in rubbing alcohol. A pesticide can be used, but likely will not penetrate the shell-like covering of the scale insects. Loosen the scales from plants before spraying at label rates with insecticidal soap or other suitable product. Control with pesticides is most effective if the 'crawler' stage of the scale is present, which is not protected by the shell-like scale.

Do not use insecticides on ferns without first treating a small area on the plant to see if they may be damaged by the application. First try applying the insecticide to only a few leaves and then wait at least four days for any damage that might develop.

Springtails

Garden springtails. Photo courtesy of Mario Lanthier, CropHealth Advising & Research

Springtail damage

Springtails are commonly found in the soil of house plants or seen hopping on the surface after watering. They range in length from microscopic to 5 mm. They thrive in moist soil where they can feed on decayed organic matter. Their presence is often an indication of over-watering and/or rotting plant material. If numerous, they may attack seedlings or tender plant parts.

Management:

Start transplants in new, clean soil. Springtails may be prevented by allowing the soil surface to dry out between waterings. Control measures are unnecessary once plants are established. For young plants being damaged by springtails, treat the soil with a dust of diatomaceous earth (silicon dioxide), or drench with an appropriate insecticide.

Thrips

Several species of thrips may infest house plants. Thrips are small, slender pests, the young being whitish to yellow or orange and the adults brown or black. Adults are hard to see because they fly about the plant, especially when disturbed. They feed by rasping the plant tissue and sucking the juice, causing a silvery, speckled appearance to leaf surfaces. Dots of black excrement cover a badly infested plant and small scars are formed where each female placed eggs in the plant tissue.

Thrips

Management:

Thrips gain access to house plants by being brought in on other plants or flowers. Examine the undersides of leaves and the blossoms of new plants. Remove infested flowers to reduce the number of reproductive adults. Predatory mites can be used for control in solariums but houses are too cool and dry for them and they are not recommended for home use.

Thrips may be detected with yellow or blue sticky traps before they become apparent on the plants. Once detected, appropriate foliar sprays can be applied.

Whiteflies

These small, delicate, white insects suck the plant juices and are usually found on the underside of leaves or fluttering about the plant in the home or in the greenhouse. The adults resemble tiny white moths and are about 1 mm long with 2 pairs of wings. The nymph and pupal stages resemble tiny flattened scales. On heavily infested plants, leaves, flowers and fruit may be covered with black sooty mould fungus that grows on sticky honeydew excreted by these insects. Leaves become pale or discoloured.

Management:

Close observation of plants for the first signs of infestation is very important. Using yellow sticky traps and careful vacuuming of the leaves at daily intervals will aid in the management of whiteflies. Whitefly predators are available in some garden centres and should be applied as soon as whiteflies are seen. Consider discarding heavily infested plants. If populations are high, and previous approaches are not cleaning up the insects, consider pesticide treatments. Insecticidal soap or pyrethrins in ready-to-use aerosols are the preferred insecticides for whitefly control. Apply when the first few whiteflies are seen. If whiteflies are numerous, a spray may be needed every three days until no more whiteflies are seen.

Diseases of House Plants

Bacterial Wilt of Geranium

Zonal and ivy geraniums are susceptible to bacterial wilt. Leaves initially have "V" - shaped yellow lesions that extend to the base of the leaf. The plant eventually wilts and dies, especially at temperatures above 26 °C. Symptoms may be confused with yellow leaf spots caused by high soil pH or *Botrytis*. The preferred soil pH for ivy geraniums is 5.5 and for zonal geraniums, 5.8-6.2.

Management:

To reduce the chances of a bacterial infection, buy healthy plants and only propagate from healthy mother plants. Keep foliage dry, and avoid wounding plants. Discard diseased plant material and potting media. Disinfect pots when cleaning up after an outbreak with a 1:9 household bleach solution. Rinse well with water. Wash hands with soap and water before touching healthy plants after handling infected ones.

Botrytis Blight (Grey Mold)

(*Botrytis cinerea*)

This disease can develop on any above-ground part of the plant as a result of high humidity, overwatering, or if dead leaves or blossoms have been left on the plant. Symptoms vary from plant to plant but the disease generally begins as water-soaked brown areas. Later these appear as fuzzy grey mold under humid conditions.

Management:

Remove old leaves and flowers, improve air movement and keep foliage dry. Pick off any infected plant tissue and dispose of it.

House plants are not normally sprayed for control of *Botrytis*. Good sanitation combined with the low humidity in a typical dwelling are sufficient.

Crown and Root Rot

The fungi that cause crown and root rot thrive in moist conditions. Over-watering and poor drainage are the main factors contributing to this condition. Plants stressed by over-watering are more susceptible to infections.

Symptoms begin as wilting of leaves, and the plant appears to need water. Upper leaves may brown from the tip back. Lower leaves may become dark and water-soaked. The entire plant may collapse. If roots and crowns are examined by removing the plant from the pot and shaking, they will appear dark and soft. Cacti and succulents are particularly susceptible to crown and root rot.

Pythium root/crown rot of African violet

Management:

If detected in the early stages, further damage may be prevented. Withhold water until the disease is halted. If possible, re-root the top part of the plant. If the plant does not recover, discard it and the infested growing medium. Wash the pot with hot soapy water before re-use and use fresh, clean potting soil the next time. Do not allow pots to stand in water in a common tray for long periods of time as the lower roots will suffocate and root rot pathogens can spread in the water from one pot to the others. Keep cacti and succulents fairly dry, particularly during winter months.

Damping-off

Several fungi that inhabit soil, potting mixes and sometimes seed, attack seeds, seedlings and cuttings causing them to rot. Plants are usually infected near the soil line, causing them to collapse when they become girdled.

Management:

Use a pasteurized, porous rooting medium. Avoid overcrowding of seedlings. Do not over-water and choose a well-ventilated area. Germinate seeds at a minimum temperature of 18°C unless directed otherwise. Cool, wet conditions promote damping-off. Purchase treated seed if available.

Leaf Spots and Flower Spots

The spores of fungi causing leaf and flower spots are spread by air currents or splashing water. Infection only occurs under moist conditions or if standing water is left on the foliage for prolonged periods. Some leaf and flower spots are caused by the fungus *Botrytis* or bacterial diseases.

Management:

Avoid wetting the foliage when watering. Provide adequate ventilation. Pick off and dispose of infected plant tissue. Remove heavily infected plants. Fungicides are rarely necessary on house plants.

Powdery Mildew

House plants in humid, poorly ventilated conditions are particularly susceptible to powdery mildew. It appears on any above-ground part of the plant as a white, powdery growth usually on the top of the leaves. In the early stages the fungus spreads slowly, and does not cause much harm to the plant. Powdery mildew spores are spread easily by air currents. They are among the few fungi whose spores do not require free water to germinate. Begonias, African violets, jade plants and roses are often affected by powdery mildew.

Rose powdery mildew

Management:

When powdery mildew appears, move the plant to a drier location with better ventilation and remove infected leaves or buds if possible. Rinsing or spraying leaves with water can remove mildew. Adding a small amount of insecticidal soap may help in control. Many home remedies are recommended for powdery mildew, but use caution since these can burn plants (see “Home Remedies”, page 8-1).

Sooty Mould

Sooty mould is the black fungal growth that feeds on the sticky honeydew secreted by sap-sucking insects such as scales, aphids, mealybugs and whiteflies. It does not harm the plant unless present over a large area, where it will interfere with photosynthesis.

Management:

Control is aimed at the insects producing the secretion. Determine which insects are responsible and take appropriate action. A mild soap and water solution will help to remove the sooty mould.

Wilts

Several fungi and a few bacteria enter the plant roots through the soil or growing mix and interfere with the ability of the plant to conduct water. Leaves wilt and become pale, eventually turning brown. Growth is reduced and the plant may soon die. The plant may have been infected prior to purchase, and stress or the change in growing conditions could have triggered disease development.

Management:

Do not stand pots in water in a common tray as the wilt pathogens can pass from pot to pot in the water. Infected plants cannot be cured and should be discarded in the garbage to avoid contaminating your compost pile. Wash the pot before re-use with soap and hot water, and dip for 1-2 minutes in a 1:9 solution of household bleach. Rinse with water or allow to dry before re-use.

Virus Diseases

Plant pathogenic viruses multiply only in living plant cells although a few can survive in a "dormant" state in plant tissue and on surfaces. They are spread by certain insects such as aphids and thrips, on tools, or through handling of plants. They cause a variety of symptoms such as stunting, ringspots, mosaic, vein banding, streaking and distorted leaves and flowers. They seldom cause serious problems on house plants although, 'impatiens necrotic spot virus', (INSV) is sometimes seen. INSV attacks a wide variety of plants. It generally causes brown or yellow rings on leaves or brown to black areas at the base of the leaf and on the leaf stem. It is transmitted by thrips.

Management:

Control insects that may be spreading the virus. Infected house plants cannot be cured and should be discarded. Dispose of infected plants in a sealed garbage bag to prevent spread to other plants.

Other Disorders

Oedema

White, raised blisters appear on the underside of leaves. This disorder is common on ivy geraniums and some other plants. It is caused by high soil moisture in combination with high humidity and cool air temperatures. Water builds up in leaf cells causing them to burst. It is not damaging to the plants.