Mites and Insects in the Interiorscape Environment

Most pest problems on interiorscape plants originate because the plants were not grown in an indoor environment. They originated where the plants were originally grown, such as fields, shade houses, or greenhouses. Once introduced to the interiorscape, many insects and mites will thrive, and spread to other plants. The **key to preventing insects and mite infestations is to make sure the plants are pest-free before permanent installation**. There is much greater flexibility in control procedures (chemicals, application methods, etc.) in a greenhouse or even an acclimatization room than in the interiorscape. **Quarantine purchased plants in an isolated room and carefully inspect and monitor them for insects and mites.** If present, use an insecticide or miticide and re-inspect them before moving them to the interiorscpe. Avoiding pest problems is often much easier the controlling an established problem.

The **importance of early detection and diagnosis of the problem cannot be overemphasized**. This is the key to controlling nearly all pests before significant plant injury or control expenses occur and while pest populations are low. Pesticides and natural enemies will control most insects and mites, if correct procedures are followed.

Mites

Several mite species attack plants indoors, often causing severe injury. Most common among them is the **two-spotted spider mite**. They have a wide host range, so very few plants are safe from attack. Adult spider mites are about 1/50 inch long and are usually found on lower leaf surfaces. Feeding injury on many plant species produces light-colored, speckled or mottled areas on leaves. This is called stippling. Webbing is also produced. Severe spider mite infestations cause leaves to dry and fall from the plant. At 75° F, about two weeks are required for mites to develop from egg to adult.

Other important mites include the **broad mite and cyclamen mite**. Because these mites are about 1/100 inch long, infestations are recognized by plant injury symptoms rather than by seeing the mites. Most feeding injury occurs on young foliage or in the buds, where injury is characterized by **thickened and brittle foliage, with leaf margins cupped downward and stunted**. Many of these symptoms are characteristic of injury by phenoxy-type herbicides or virus infection, so infestations can go unnoticed for long periods of time. Since **these mites are attracted to dusty conditions**, removing dust from the plants with soapy water and a soft cloth (which will also remove the mites) will help discourage their presence.

Insects

While many insects may injure plants indoors, the groups discussed below are the most common with indoor plantings.

R. Bessin, University of Kentucky

Mealybugs are very common and are difficult to control. Several species can be found on plants indoors, including some that feed on the roots as well as the stems and leaves. All mealybug species have sucking mouthparts that remove plant sap. **Sticky honeydew is produced, which drips on foliage below the infested area, attracts ants, and promotes black sooty mold growth.** Damage results in stunted plant growth or death. Each female mealybug may produce several hundred eggs. The egg-to-adult cycle is 6 to 8 weeks. Moving infested plant material into the interiorscape is virtually the only way mealybugs become established.

United States National Collection of Scale Insects Photographs,
USDA Agricultural Research Service, Bugwood.org

Several species of **scale insects** infest interiorscape plants, arriving on previously infested plants. One of the most common is the **soft brown scale**. Scales, similar to mealybugs, are sap-sucking insects, which also excrete honeydew. Females produce up to 1,000 eggs underneath their protective shell or "scale." The eggs hatch into tiny crawlers, which spread about the plant. After dispersing, crawlers settle and feed in one location for the remainder of their lives. The length of the life cycle varies with each species, ranging from 1 to 8 or more generations per year. Scale damage reduces plant vigor. The honeydew attracts ants and promotes the growth of a black, sooty mold.

Jim Occi, BugPics, Bugwood.org

Aphids also have piercing-sucking mouthparts and produce honeydew. They are soft-bodied, somewhat pear-shaped insects. **Indoors, all aphids are female, reproduce year round, and multiply rapidly.** Each mature female may produce up to 50 daughters that, in turn, begin reproducing in 7 to 10 days. Aphid infestations often are evident by the white cast skins that are shed by the aphids when molting. Aphids reduce plant vigor and distort leaves. The honeydew attracts ants and promotes the growth of a black, sooty mold.

Scott Bauer, USDA Agricultural Research Service, Bugwood.org

Whiteflies have piercing-sucking mouthparts which they use to suck juices from the plants. They excrete large quantities of honeydew. Whiteflies, including greenhouse whitefly and silverleaf whitefly, are common pests of

many ornamental plants. Indoors, whiteflies are most likely to be found on **poinsettia, fuchsia, chrysanthemum, or other flowering plants** brought into the location for color. All whitefly life stages **develop on undersides of leaves**. The egg-to-adult cycle takes 21 to 36 or more days, depending on temperature.

R. Bessin, University of Kentucky

Thrips cause problems indoors on both foliage and flowers. These small, slender insects are less than 1/20 inch long. They feed by rasping plant tissues with their mouthparts and consuming plant fluids. **Heavily infested areas on leaves appear silvery gray, with lighter infestations showing up as small whitish-colored areas.** Black dots of excrement also are present. Eggs are laid on or in plant tissues. The egg-to-adult cycle takes 18 to 21 days. Some species of thrips leave the plant and transform to the adult in the growing medium. Thrips are difficult to control indoors. Few insecticides are registered for use on plants indoors that provide effective control, unless the plants are moved to a greenhouse or outdoors prior to treatment.

R. Bessin, University of Kentucky

Fungus gnats are small, dark gray or black flies that resemble midges or mosquitoes. Presence of fungus gnats **may indicate overly wet growing medium**. The flies often get trapped in the moisture on leaf surfaces, which detracts from the plant's appearance. Nuisance and decreased aesthetic value are the greatest impacts done by adult fungus gnats; however, the larvae also damage plants by feeding on decaying or healthy organic matter (including roots)

and fungi. **Fungus gnats have increased in importance recently because of the prevalence of soil-less mixes** in the plant industry. Some of these growing media, especially those that contain peat moss, apparently are excellent for survival of the insects.

Control

Commercial indoor landscape accounts are perhaps the most difficult areas in which to attempt pest control. Interior plantscapes extend from public conservatories to extensive plantings in homes, hotels, office buildings, restaurants, shopping malls, hospitals, schools, and other environmentally sensitive areas. The **use of insecticides in these areas is often greatly restricted** because of the sensitivity of the surroundings. In addition, **few chemicals are cleared for ornamental plant use in public areas**, and public prejudice against pesticide odors can prevent application of pesticides in many situations.

An amazing variety of insects feed on flowering and foliage plants. The routine use of insecticides usually eliminates predaceous insects and mites. However, pests remaining after treatment sometimes tolerate commonly used insecticides. To stay in business, most commercial flower and foliage plant growers must become fairly sophisticated in using various types of pest management practices, insecticide formulations, application equipment, and in rotating insecticides from one chemical group to another.