Seeing the Light

By Susan Jones

Temperature and Humidity

The heat generated by grow lights can cause hot, dry conditions in the growing environment. Symptoms of excess heat and a corresponding dearth of humidity include brown edges on leaves, wrinkled or pleated leaves (especially in Oncidium-type orchids), bud blast, and even weak, shriveled or stunted growth. A warm, dry growing environment can also encourage pests such as spider mites, which thrive in low humidity. Maintain humidity of 50 to 60 percent to keep your orchids in optimal health, and keep the ambient temperature no higher than 80–85 F (27–29 C), with a nighttime differential of 10–15° F (6–8° C).

Misting to increase humidity is helpful in the short run, but tends to evaporate quickly and so provides little lasting benefit unless it is repeated at frequent intervals throughout the day. Unless one has an automated misting system in place, misting is not the most effective form of humidity control.

Place plastic or ceramic (waterproof) saucers filled with pebbles and water underneath plants (making certain that the water level stays just below the bottom of the pot). This increases the ambient humidity around the plant as the water evaporates into the surrounding air.

Another option is humidity trays. These trays are usually plastic, a couple of inches deep and covered with a plastic egg-crate lattice to keep plants elevated above the surface of the water in the trays. They are available in a range of sizes and shapes, and usually accommodate a number of plants on each tray. They may be purchased from most orchid supply companies and some nurseries as well. Trays can be easier to manage than an individual saucer under each plant, and allow the grower to water plants without moving each one to the sink, instead letting the runoff drain into the trays.

Metal shelving units such as this are available at most home improvement stores. Look for one coated with vinyl or rust-resistent paint for use in an indoor light garden.

Air Circulation

Orchids are not the only organisms that benefit from a humid environment. Fungi and bacteria find it inviting as well, and without adequate circulation in the growing area, they will make your orchids their host. Gentle but constant air movement will impede the growth of these unwanted pests while aiding the overall health of the orchids. Proper airflow will also help minimize any heat buildup generated by growing lights, cooling the plant's foliage to help prevent drying or even burning of tissue and reducing the ambient temperature.

A fan or fans, depending on the size of the growing area, will provide needed circulation. An open window can help too, but this may adversely impact temperature and humidity levels, depending on the weather outside. In addition, like people, orchids should never be left in the path of a cold draft. Oscillating fans or muffin fans strategically placed around the growing area can keep air movement at a healthy level. At an adequate level of airflow, orchids' leaves will stir very slightly in the breeze, no more. If smaller, lighter plants are being blown around or toppled, the breeze is too strong.

Finally, plants must be spaced to allow the air to circulate between them. Orchidists are a notoriously acquisitive lot, and the temptation to fit just one more plant into a limited space can lead to overcrowding, which invites a host of ailment possibilities, including those caused by inadequate air movement.

Light

Too little light will yield dark green foliar growth with few or no flowers. Plants exposed to too much light may have yellowed leaves with a red or purple cast to them. High light exposure is not usually a problem for under-lights growers, but weak growth and failure to bloom are often symptoms of otherwise healthy orchids receiving inadequate light.

Species and hybrids that stay petite in stature at maturity and do not require high light levels to flower and grow well, such as some of the angraecoids, dendrobiums, masdevallias and other pleurothallids, phalaenopsis, paphiopedilums and sophronitis, are ideal candidates for inclusion in a light garden. Many of the miniature members of the Cattleya Alliance, tolumnias and smaller vandaceous orchids are excellent choices size-wise, but most will need higher light to induce flowering than under-lights set ups are usually able to provide.

In addition, collecting orchids of similar cultural requirements and size at maturity will help ensure a growing environment and culture regime suitable to all of the plants in a light garden. Homogeneity in size helps assure that all of the plants will receive the maximum exposure from the grow lights. When there is a height disparity among plants, the lights are often adjusted to accommodate the tallest orchids, while the smallest in stature remain too far from the bulbs to receive adequate illumination.

Photoperiod is another consideration, and one easily managed by under-lights growers. A photoperiod is the amount of time for which an orchid is exposed to light (and darkness) during a 24-hour period. That daily exposure affects the orchid's growth and blooming. Some orchids, especially species, are sensitive to the balance of day and night length, and will not bloom if not given long enough periods of darkness at night. Also, a light left on, or even an outdoor light shining in a window at night may prevent or interrupt flower development. Familiarize yourself with the light requirements of the orchids under your care, and set your light timers accordingly, adjusting them as needed for summer and winter variations in day/night length.

Paphiopedilums, with their low-light requirements, make excellent candidates for growing under lights.

Insects

Aphids, mealybugs, scale insects and spider mites are some of the most common pests to annoy light gardeners. These insects can be introduced into a collection via new plants; even slugs and snails can hatch from eggs that hitchhike into the growing area in plant media. Crowded orchids enable insect pests to spread rapidly from plant to plant. To prevent the introduction of pests to the growing area, isolate new introductions for a minimum of two weeks to be certain that they do not harbor unwelcome visitors that could spread to other plants.

Remedies for insect pests on orchids grown in one's living environment are of necessity more gentle and less toxic than standard insecticides so as not to compromise the health of people and pets sharing that space. These treatments should be repeated at regular weekly intervals for maximum insect control. Remember to avoid getting sprays on the light bulbs above plants; buildup from those sprays will reduce light output over time.

Give the Pests a Shower A jet of room-temperature tap water from a kitchen-sink spray nozzle or hand-held showerhead will do handily.

Isopropyl Alcohol A spray bottle with isopropyl alcohol kills pest insects on contact, and a cotton swab dipped in alcohol may be used to manually remove pest insects.

Horticultural-Oil Spray Mix 1 teaspoon (5 ml) of a horticultural oil (neem oil, superfine oils, peppermint or eucalyptus oil), ½ teaspoon (2.5 ml) gentle, plant-safe liquid dish soap into one quart (.9 l) of warm water. For a larger batch, combine 4 teaspoons (20 ml) horticultural oil, 2 teaspoons (10 ml) of dish soap and 1 gallon (3.8 l) of water. Shake the solution during use to keep the ingredients well mixed, and make up a fresh batch for each application. Thoroughly coat all surfaces of the plants being treated; the oil smothers insects, and so must contact them to be effective.

Insect-Growth Regulators and Chitin Inhibitors These products, such as Enstar II, include a growth regulator that kills eggs and prevents insect maturation. Be sure to follow safety precautions on the label when applying these controls.

Insecticidal Soap Available from most home and garden centers, insecticidal soap kills soft-bodied insects by breaking down their cuticle. While generally considered safer for use around humans, pets, and plants than insecticides, insecticidal soaps are still hazardous to human and animal health and must be applied with caution in conformity with the label.

References

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