



## Cultural Requirements of *Dendrobium*

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Of all the types of orchids a beginning grower may acquire, dendrobiums will probably be the most challenging to learn to grow and flower. The reason is that the genus *Dendrobium* (den-DROH-bee-um) contains more than 1,000 species and is exceedingly diverse. Botanists divided the genus *Dendrobium* into a number of "sections," each of which comprises a group of more-or-less closely related species that are relatively similar in appearance and in cultural requirements. Therefore, it is very helpful to know which type of *Dendrobium* one has in order to determine its cultural needs. As might be expected, however, here are certain requirements common to nearly all species, which are described here.



Dendrobiums are found only in the Eastern Hemisphere, from New Zealand north to Japan and westward through Southeast Asia to India and Sri Lanka. In size, they include miniature plants happy in a 2-inch pot set in a lighted plant tray to towering, stately species best grown in a large greenhouse or outdoors in tropical climates.

The flowers range from exceptionally showy to small and insignificant, the latter being primarily of interest to the botanist or horticultural specialist. Virtually every color found in the orchid family occurs in this genus. Flowers of many species combine several colors, with the lips of some bearing blotches of color in striking contrast to the rest of the flower. Some dendrobiums possess exceptionally long-lasting flowers, while those of others are of brief duration. The extremes range from six months for individual flowers in a few cases to less than one day for a handful of species.

The inflorescence is seemingly terminal in some species, the flowers being borne in a loose raceme or dense cluster. Many, however, bear a series of clusters of two or three flowers which emerge from the pseudobulb opposite the leaves.

Some dendrobiums are evergreen; individual leaves will live and function for several years. Others are completely deciduous, dropping all of their leaves upon completion of the current growth. A number of species are partly deciduous, dropping some, but not all, of their leaves annually, at least under most cultural conditions.

Two groups of dendrobiums that have been grown and hybridized extensively – *Dendrobium nobile* and its relatives and the *Dendrobium phalaenopsis* (syn. *Den. bigibbum*) hybrids.

**Temperature and Humidity**—The size and extensive geographic range of this genus have resulted in utilization of natural habitats as diverse as mangrove thickets on the shores of tropical islands, with the orchids growing just above the high-tide level, to mossy limbs in montane cloud forests. Of course, each species is found only in the specific habitat in which it evolved. The temperature requirements for each species are keyed to those in which it is found in the wild. To complicate things further, some species grow where there is considerable seasonal fluctuation, with warm, wet monsoon conditions during the summer growth period and cooler, drier winters during which the plants are largely dormant.

Ideal temperatures for those species found in tropical lowlands would be 80 to 85°F during the day and 65°F at night. These temperatures also would be appropriate during the summer for those mid-elevation species from the monsoon belt. Most of the warm growers do well enough under intermediate temperature conditions in the winter (70 to 75°F days, 60°F nights). Those from the monsoon areas do best in the winter under cool-house conditions (60 to 65°F days, 50 to 55°F nights). High-elevation species from areas where there is less seasonal variation are ideally suited to year-round cool-house temperatures as mentioned above. Their growth cycles also tend to be less seasonal.

A drop in night temperatures to 50°F for at least a month in the late winter induces certain dendrobiums, which bloom at the end of their winter dormancy, to set buds more easily. This includes *Dendrobium nobile* and its hybrids and *Dendrobium kingianum*.

Most dendrobiums, at least when in active growth, do best at a minimum of 50- to 70-percent relative humidity.

**Light**—The majority of dendrobiums grow and flower well under *Cattleya*-like light conditions, which is fairly strong

light, amounting to 1,500 to 2,500 foot-candles. As growths mature, it is particularly important to have strong light so that developing pseudobulbs become as large and thick as possible.

Because of their need for light, most dendrobiums are not the easiest orchids to flower under artificial lights or on a windowsill. If they are grown in this way, summering them outdoors with light shade from the midday sun usually is successful in producing strong growths, which are the first requisite for flowering. Give the best light available during the time when they are indoors.

**Watering**-Water dendrobiums copiously when they are in active growth (assuming they are in small pots through which water drains rapidly). Pseudobulbs should be firm and not shriveled while the plant is growing. In warm, sunny weather, a thorough watering every second day is often optimal. The frequency of watering in autumn and winter after growths have matured is a bit trickier and depends more on the species being grown. Generally, evergreen types should receive just enough water to prevent marked shriveling of the pseudobulbs during this period. But it takes less water to keep them plump than when they are in active growth. Those species that are completely deciduous should receive little water while dormant. It takes only a small amount of water to prevent desiccation for these species.

**Fertilizing**-Large dendrobiums require copious amounts of nutrients when in active growth, when they have vigorous root systems and when they are positioned in strong light. Under these conditions, it is appropriate to apply a dilute solution of a balanced liquid fertilizer such as 18-18-18 (or 30-10-10, if plants are fir bark) twice a month. The miniature species generally require less frequent fertilizing. Monthly applications when they are in active vegetative growth should be sufficient. When in active or dormant, dendrobiums require no fertilizing.

**Potting**-Perhaps the single most important aspect of *Dendrobium* culture is proper potting. Almost universally, they do best in a pot very small relative to the size of the plant. They prefer to be pot-bound. The origin of new growths of most species is very close to the previous growth. Therefore, they do not outgrow even a small pot as readily as do cattleyas, for example. This is fortunate because one can use small pots without the necessity of frequent repotting. Dendrobiums resent the disturbance caused by repotting even more than most orchids. The ideal is a container just large enough to accommodate three-to-four years of tightly clustered growths.

The potting medium should reflect the needs of the roots of most species. It should be of rather fine texture, but with perfect drainage. The object of the drainage, which is facilitated by a small pot, is to encourage vigorous rooting so that the medium does not decompose quickly and the plant need not be repotted frequently. This cause-and-effect combination (small pot and fast draining medium equaling excellent root growth and infrequent repotting) is crucial to cultivate dendrobiums successfully. Because some dendrobiums grow quite tall and others have somewhat arching or pendulous growths, it often is advantageous to hang the small pots to avoid problems of top-heaviness. This is also a good idea from a cultural standpoint because drainage and light are increased to a maximum.

Some of the smaller types of dendrobiums also are grown readily on chunks of tree fern, cork or cut sections of branches. When grown on the latter two, a small pad of sphagnum moss or osmunda fiber placed beneath the plant is useful in preserving moisture for a slightly longer period, particularly if the plants are grown inside the home.

*Dendrobium* species that can be grown on mounts are *Den. lindleyi* (syn. *Den. aggregatum*), *Den. cucumerinum*, *Den. cuthbertsonii*, *Den. kingianum*, *Den. lichenastrum* and *Den. linguiforme*.

When to repot is as important as how in this genus. The rules applicable to most genera apply here, too, but with even greater emphasis. Most dendrobiums root copiously from new growths when the growths are only a few inches high. By far the best time to repot is when these new roots first appear. The longer repotting beyond this stage is delayed, the greater the danger to the plant. In fact, repotting during relative dormancy after growths have matured can be fatal. Because most dendrobiums begin growths in the spring, this is normally the time to repot.

While dendrobiums can be intolerant of lackadaisical culture, attention to detail is rewarded with an exuberance of handsome flowers. The true enthusiast will as well exult over every new root and leaf.

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