



Cultural Requirements for *Dendrobium Nobile*

By Jiro Yamamoto

DENDROBIUM NOBILE AND RELATED species are native to Burma, India, Thailand and Indochina. Here they grow on trees, from the lowlands up to the cool highlands of the Himalayas at elevations of 4,000 feet. The species and their hybrids are extremely hardy, surviving temperatures ranging from warm to hot as well as enduring freezing conditions in some locales. If kept dry, these species and hybrids will survive winter temperatures of 37 to 39 F and flower around April.



Temperature and Humidity For differentiation of flower buds, it is important to expose plants to low temperatures. The pseudobulbs, which grow from spring through summer and mature in the autumn, require approximately one month of low night temperature. Therefore, in the autumn when it becomes cool, do not rush to bring plants into the greenhouse, unless a freeze is forecast. Leave them outside to cool, and they will bloom better.

When in full bloom, flowers will last longer if the plant is placed in a cool, dry spot away from any draft and out of direct sunlight. A night temperature of 40 to 50 F is ideal. Water the plant enough to moisten the surface of the medium once every five to seven days during the warmest part of the day. The medium should be dry before evening.

Light Small plants require no shade during the winter. However, 30 to 40 percent shade is needed from late spring through autumn for healthy growth. Medium or flowering-size plants do not need shade any time (unless the leaves begin to burn). Full sun promotes vigorous growth.

Where summer breezes are minimal, provide 30 to 40-percent shade during those months. If ventilation is inadequate in the green house during the flowering season, buds will be damaged, and flowering will be poor. Therefore, 30 to 40-percent shade is recommended from the time flower buds appear until the end of the flowering season.

Watering When temperatures begin to rise in the spring, gradually start watering. In the summer, when temperatures are high and sunlight is strong, water almost every day to keep the plant from dehydrating. In late September, when temperatures begin to fall, gradually reduce watering. When the night temperature falls below 50 F, water only enough to keep the canes from shriveling: once a week should be adequate. When night temperatures fall below 40 F, keep the plants dry. In a greenhouse in which night temperatures are kept above 60 F, water lightly when the plants are dry. It is important that the medium surface is dry by evening.

Fertilizing A low-nitrogen fertilizer is ideal for flowering specimens. Discontinue fertilizing after early August to guarantee many flowers. For small plants grown without supplemental heat, and where night temperatures fall below 45 F in winter, apply fertilizer high in nitrogen when night temperatures rise to about 50 F (March to April). If night temperatures in winter are above 50F, fertilize in January. The easiest way to fertilize small plants is with timed-release fertilizers that are effective for more than six months. Do not use timed-release fertilizers on flowering-size plants; they may cause over-fertilization.

Potting Tree-fern fiber, osmunda, fir bark, sphagnum moss and other media appropriate for cattleyas are

suitable for *nobile*-type dendrobiums. A mixture of three parts perlite, one part vermiculite and one part peat moss is suitable. A slightly acid medium (pH 5) through which water drains rapidly but still retains some moisture is suggested.

Clay pots are recommended for sphagnum moss or media that retain moisture. For more-porous media, choose plastic or polyethylene containers. Appropriate pot sizes:

Small plant up to 3 inches tall: Use a 2 ½ - inch pot.

For a 5-inch tall plant: Use a 3-inch pot

For a 10-inch tall plant: Use a 4-inch pot

Overpotting does not enhance the growth of small plants.

When the night temperatures remain above 55 F, repot overgrown or large plants that have finished flowering. Postpone transplanting when lower temperatures prevail. To repot, remove decayed potting medium and discolored black or decayed roots by washing them with water. Be careful not to damage the live roots. Repot into a container one size larger than the present vessel. If the root-ball's size has decreased due to removal of decayed roots, set the plant into a smaller container.

Plants with more than seven or eight pseudobulbs can be divided, although this is not necessary. Dividing healthy plants with only four or five pseudobulbs hinder the following year's growth. Transplant small or medium-size plants that have finished flowering only when the pot has become too small to support the height of the canes. The best time for planting or transplanting is when new shoots are 4-6 inches tall: the new roots from the new shoots will rapidly anchor themselves in the potting media. Do not repot when no new shoots are growing or the plant has stopped growing.

After repotting, keep the medium relatively dry for two weeks. Water once every three to four days, just enough to moisten the surface of the medium. When new roots appear, provide ample water that drains through the bottom of the pot. Keep the plants in 40-percent shade for three weeks after transplanting.

From spring to early summer, keikis (offshoots) may appear on the upper nodes of the pseudobulbs due to damage of the new shoot or because of excessive nitrogen. Keikis produced in the spring produce thick pseudobulbs and mature during the summer. When the roots are 3 to 3 ½ inches long, remove the keiki. Soak the keiki in water to soften the roots, then plant in a 3 inch (or larger) pot, depending on the keiki's size. If the shoots near the bottom of the pseudobulbs and keikis appear simultaneously, pluck off keikis to encourage development of the main shoots.

Inducing Flowers Poor flowering, in spite of robust growth, and the appearance of keikis are the most common problems with *nobile*-type dendrobiums. The solution: Provide plenty of light to flowering-size plants. As long as there is constant air circulation, they can be grown without shade, even in summer. In Hawaii, plants are grown in full sun (no shading) successfully. If air circulation is inadequate, about 30- to 40-percent shade should be provided in July and August to prevent leaf burn. From September forward, situate plants in full sun to produce strong canes and leaves, and to prepare them for flowering.

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