**New York Botanical Gardens: Nobile Dendrobiums (bloom at cane)**

The orchid family*, Orchidaceae,*is one of the largest of all flowering plant families, with plants growing in many different habitats*.*Successful orchid culture is the result of imitating an orchid's natural habitat as closely as possible.  All orchids need appropriate light, temperature, humidity, moisture, nutrients, ventilation, potting medium, and maintenance.

*Dendrobium* is a particularly large genus of more than a thousand, mostly epiphytic, deciduous or evergreen species originating in tropical to subtropical Asia, the Pacific and Australia. Encompassing warm-, intermediate- and cool-growing orchids, care requirements for *Dendrobium* are as diverse as their places of origin. The American Orchid Society divides *Dendrobium* into 41 Sections and many of the most popular*Dendrobium* to grow in the home are hybrids.

Nobile-type *Dendrobium* hybrids are derived from orchids native to high-elevation regions of Asia with cool winter and warm, wet summer growing conditions. Often closely related to *Dendrobium nobile*, they can be challenging to grow because they require a dry and low- temperature environment to create dormancy in winter months and trigger bud formation, with continued bright light. Plants can be fully to semi-deciduous. Flowers are lightly fragrant, forming generously from nodes along the cane. Frequently, the flowers feature a central splash of color.

**Light:**

Nobile *Dendrobium* hybrids require extended very bright light to remain vigorous and produce flowers. In the New York City area, a south-facing window with a shear, filtering curtain is often best or an east or west window with extended light. Bright light should continue during the winter resting period.

With the use of a light meter, you can directly measure the light exposure of a potential growing area. A bright, sunny day out of doors may measure 10,000 foot-candles, while a south-facing window may be about 5,000 foot-candles.*Dendrobium* is considered a high-light orchid and requires anywhere from 2,000 to 4,000 foot-candles of light.

LED artificial light can be used to supplement light for most orchids. Increase exposure gradually and be careful not to place the light too close and burn the plant. Look for a full-spectrum light option made for plants.

**Water and Humidity:**

Nobile *Dendrobium* hybrids need water conditions that are suitable to the season, with generous water when actively growing and reduced water in the coldest months. In the active growth period from spring through summer, water the plant to keep it evenly moist, drying only slightly between waterings.

When it is time to water, place the plant in a sink and allow the water to soak through and drain out completely. Always water in the morning. It is best to use tepid water, as it will help to dissolve fertilizer salts and not shock the plants. Dab off any water that settles on the plant to avoid spotting of leaves.

In the fall, begin to taper off watering. The orchid will stop making new leaves and in late fall (about mid-November), reduce water further so that you provide little to no water for a period of 2 to 3 months. Water only to keep the cane and pseudobulb from shriveling. Do not resume watering generously until buds have formed along the cane. Some foliage may fall, leaving the plant looking bare and strange, but that is normal for these deciduous to semi-deciduous plants.

Humidity in the air is just as necessary as moisture in the soil during the growing season. A minimum of 50% relative humidity is required to grow nobile *Dendrobium*hybrids from spring to fall whereas an average home in the northeast will have humidity as low as 25%. In homes and apartments, both heating in winter and air conditioning in summer remove a lot of moisture from the air. Supply extra humidity with humidifiers, or group plants on a gravel-lined tray that is filled with water to increase air moisture through evaporation. You can use a simple hygrometer to assess the humidity. In the late fall, allow the humidity to fall as the plant enters a rest period and begins bud formation, increasing humidity only occasionally along with water to prevent the cane and pseudobulb from shriveling.

The high humidity in tropical areas is often accompanied by gentle and constant air movement. Stagnant, humid air is as detrimental to orchids as cold drafts. Air movement is essential, as it evaporates moisture on leaves and stems and helps protect plants from the spread of disease. As humidity rises during the growing season, so should air movement.

**Temperature:**

Most orchids need a distinct fluctuation between day and night temperatures to successfully produce flowers, and nobile *Dendrobium* hybrids also need distinct variation between the active and non-active growing seasons. In active growth, they prefer day temperatures between 70 and 80°F, with night temperatures between 55 and 65°F.  During the winter rest period, keep day temperatures below 70°F, with night temperature around 55°F. That low, winter night temperature is important to induce flowering once growth resumes, otherwise there is a good chance that you will get keikis (baby orchids) instead of flowers.

**Nutrition:**

Since orchid potting mediums are not composed of nutritious garden soil, the rule of thumb for orchid feeding is "feed weakly, weekly". Nobile *Dendrobium* hybrids have a greater need for nutritional supplements than many orchids. A balanced, powdered fertilizer (20-20-20) is best, at ½ of the recommended strength on the label, every other time you water. Stop feeding completely in the fall and during the winter rest. Resume fertilizing the orchid when buds are well formed.

**Encouraging Flowering:**

An orchid needs to have all its requirements met to generate the energy necessary to flower. Adequate light, proper watering, and proper temperature and humidity levels all contribute to a floweringnobile*Dendrobium* hybrid. In nature, orchids experience a 10 to 15ºF. temperature difference between day and night. Observing a resting period for several months of cool, dry conditions, bright light and maintaining the day/ night temperature differential is important when trying to initiate flowering in nobile *Dendrobium* hybrids. A relatively tight container for the small root system will aid flowering.

**Care After Flowering:**

Cut the flowering stems back to the cane. The plant may flower from the existing canes as well as form new ones.

**Re-potting:**

When the potting medium has deteriorated, *Dendrobium* should be repotted, approximately every 2 to 3 years, after flowering. A fast-draining potting medium is essential but both bark and sphagnum orchid mixes are fine. The roots are relatively small and slow growing; most *Dendrobium* prefer growing in a tight spot and keeping the container relatively small while changing out the growing medium will support a healthy root system.  Any rotting roots need to be removed immediately with sterile tools. If you reuse a container, be sure to clean it thoroughly.

Be sure to use only quality orchid potting mixes and never substitute landscape mulches for orchid potting mediums.

**Hygiene:**

Cleanliness is important for orchids. Wash orchid leaves occasionally to reduce the harmful effects of excess debris and minor insect infestation. Since orchids are susceptible to viral diseases, use gloves when handling them and/or wash hands often between handling. Do not allow leaves to remain wet. When cutting stems always use tools sterilized in a 10% bleach solution (1 part bleach to 9 parts water) and/or alcohol, or use a clean, single-edged razor blade.

**What to watch for:**

**If you have only baby plants developing in spring** rather than flower buds, it can indicate that the winter temperature was not cool enough or that you are using a plant food too high in nitrogen.

**Some foliage may fall off** during the winter dormancy period leaving the plant looking bare and strange, but that is normal for these deciduous to semi-deciduous plants.

**Leaves that pleat or do not unfold** properly often indicate damaged roots from growing medium that does not drain well enough. Repot your plant in fresh growing medium, removing damaged roots and disinfecting with fungicide.