

Most plants can survive random light conditions, but they will not be happy unless you provide more or less the correct light levels for the specific plant. When it comes to temperatures, the consequences of incorrect growing conditions can be far more dramatic.

Light

Too high light levels can burn the plant. The danger is most acute in late winter/early spring, when plants are the most tender after the low light winter.

Leaf burns are most common on low light plants, such as Phalaenopsis and Paphiopedilum, but may occur on other genera if the plants are exposed to significantly more light than their normal range. For most cloud forest plants (Masdevallias, Draculas, Pleurothallids, etc.) this can lead to a rapid demise.

At the opposite end of the scale, **too low** light leads to a failure to bloom. It continues on to stunted new growths, which are incapable of blooming.

For many orchids, there is a very good indicator in the leaf color. High light plants should NOT have dark green, but rather a golden/green, foliage. This applies to:

- Cymbidium
- Cattleya
- Dendrobium kingianum & it's hybrids
- Dendrobium nobile & it's hybrids
- Reed stem Epidendrums
- Vanda/Ascocenda group

With appropriate **hardening** (gradual increase in light levels), and watering adjustments, I have grown the following orchids **in full sunlight** in **New Jersey** without problems:

Cymbidium: If brought out in late April, they can go into full sun without hardening first. By mid May, they need a week in light shade first. They stay out till first frost, usually in mid November. This requires heavy watering twice a week.

Dendrobiums: Aussies same as Cymbidium. Nobile types require 2-step hardening to tolerate full sun. Watering same as Cymbidium, but observe:

- No fertilizer after Sep 15th
- Reduce watering by 75-90% after Oct 15th (protect against fall rains!).

Laelia anceps & its hybrids: Same as the Cymbidiums.

Reedstem Epis: Same as the Cymbidiums.

Ascocenda, Neofinetia, Renanthera, Rhynchostylis & Vanda: These come outside on Memorial Day, covered with a lattice for the first 10 days, then the lattice is removed. This requires daily watering, and ideally a couple of light sprays of water at 10:30 AM & 2 PM. It is pushing the limit for Rhynchostylis, but it works. Plants return indoors in late September (when night time temperatures threaten to drop below 55°F (13°C)).

For those who need numbers, as long as care is taken in the early spring, these values are good for the summer:

<u>GENERA</u>	<u>Footcandles</u>	<u>% shade</u>
Aerides	3000-5000	±40%
Cattleya	3000-5000	±40%
Cymbidium	5000-7000	±20% (or 0%)
Den kingianum	4000-5000	±30% (or 0%)
Den nobile	3000-5000	±40% (or 0%)
Neofinetia	4000-5000	±30% (or 0%)
Paphiopedilum	1000-1500	±65%
Multi-florals	3000-5000	±40%
Phalaenopsis	1000-1500	±70%
Rhynchostylis	4000-5000	±30% (or 0%)
Renanthera	4000-6000	±25% (or 0%)
Vanda	5000-7000	±20% (or 0%)

And finally, some genera (incl. some Cattleyas) are dependant upon lengthening night times to initiate buds. If grown under lights with a constant number of hours of light & dark, these plants will not flower well.

Temperature

Aside from maintaining normal day & night temperature ranges for plants wellbeing, be aware that there are some other considerations:

- Intermediate/Warm growing Vandas will shut down (stopping growth) if exposed to temperatures below 55°F (13°C).
- Sarcophilus (cool growing Australian Vandas) require low light (same as Phalaenopsis & Paphiopedilum), and intermediate/cool temps. During summer heat waves, move into deeper shade & increase watering.
- Paphiopedilum require a 10-15°F (6-8°C) nighttime temperature drop for 2-3 weeks to initiate buds in mature growths. After this cooling off, they will bloom 5-6 months later. Many other genera rely on a similar temperature drop for setting buds, but most will bloom much sooner.
- Flower color can be both temperature & light dependant:
 - In Paphiopedilum the red color develops best in cooler temperatures (winter blooming). If the same plant blooms in the summer, there will be a color shift towards brown shades.
 - In Vandaceous plants, the red/purple colors require higher light intensity to develop fully. These photos show the same plant, blooming in full sun in August vs in the greenhouse in February.



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