

## *Vanda coerulea* Griffith ex Lindley

**ORIGIN/HABITAT:** Northeast India, Burma, Thailand, and southwest China. Discovered first in the Khasi (Khasia) Hills of northeast India, plants have since been found in the mountain regions of Burma and northern Thailand. They usually grow high up in rough-barked trees that are not exceedingly leafy so that the plants are fully exposed to the sun, rain, and wind. The roots sprawl over the dry rough bark with no moss or lichen present. Therefore, they are able to dry very rapidly after becoming wet. Over most of the range they are found at 3000-5000 ft. (910-1520 m), but in Thailand cultivated plants reportedly grow well under natural conditions in Chiang Mai which is at 1100 ft. (340 m).

**CLIMATE:** Station #48057, Taunggyi, Burma, Lat. 20.8N, Long. 97.1E, at 4712 ft. (1436 m). Record extreme temperatures are 93F (34C) and 32F (0C).

N/HEMISPHERE	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
F AVG MAX	72	76	81	84	81	77	75	76	76	75	74	71
F AVG MIN	45	47	52	60	63	64	64	64	63	61	52	47
DIURNAL RANGE	27	29	29	24	18	13	11	12	13	14	22	24
RAIN/INCHES	0.1	0.4	0.1	1.3	9.3	7.8	11.3	13.0	8.5	6.8	1.5	0.6
HUMIDITY/%	66	59	49	55	72	82	83	85	84	82	76	71
BLOOM SEASON	*	*	*	*	*	*	*	**	***	***	***	**
DAYS CLR @ 6AM	17	20	23	17	8	0	0	1	2	6	16	18
DAYS CLR @ 12PM	21	19	22	11	3	0	0	0	0	1	9	16
RAIN/MM	3	10	3	33	236	198	287	330	216	173	38	15
C AVG MAX	22.2	24.4	27.2	28.9	27.2	25.0	23.9	24.4	24.4	23.9	23.3	21.7
C AVG MIN	7.2	8.3	11.1	15.6	17.2	17.8	17.8	17.8	17.2	16.1	11.1	8.3
DIURNAL RANGE	15.0	16.1	16.1	13.3	10.0	7.2	6.1	6.6	7.2	7.8	12.2	13.4
S/HEMISPHERE	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN

### Cultural Recommendations:

**LIGHT:** 3000-4000 fc. Growers report that plants grow well in almost full sunlight. In the habitat, however, heavy summer cloud cover dramatically reduces light. This suggests that some shading is appropriate for cultivated plants at mid-day in summer. Strong air movement is recommended at all times. Long, deep green leaves indicate light levels are too low. Short, pale, yellow-green leaves that do not spread fully open indicate light levels are too high.

**TEMPERATURE:** Summer days average 76-77F (24-25C), and nights average 64F (18C), with a diurnal range of 11-13F (6-7C). The warmest season is spring, before the start of the summer monsoon. Days average 81-84F, (27-29C), and nights average 60-63F (16-17C), with a diurnal range of 18-24F (13-18C).

**HUMIDITY:** Near 80-85% from summer into autumn, dropping to 50-55% in late winter and spring.

**WATER:** Rainfall is heavy for 6 months from late spring into autumn. This is followed by an abrupt change to 4-6, dry months with little if any transition between the two seasons. In the growing season, the roots of cultivated plants should be kept moist with several mistings a day necessary during the hottest, brightest days. Water should not stay in the crown of the plant for any length of time, however. Water should be gradually reduced in autumn.

**FERTILIZER:** 1/4-1/2 recommended strength, applied weekly to biweekly while plants are actively growing. Most growers use a balanced fertilizer during much of the growing season. Some recommend using a fertilizer higher in nitrogen, such as 30-10-10, for young plants or for plants potted in bark. Also, some growers prefer a fertilizer lower in nitrogen and higher in phosphorus in late summer and autumn. A low nitrogen to phosphate ratio slows new growth so that plants can harden before winter and promotes better blooming the next season. In order to prevent salt buildup, the medium should be leached every few weeks during periods of heavier fertilizer applications. This is especially important in areas with heavily mineralized water. Leaching a pot is simple. First water the plant normally to dissolve any accumulated salts, and then an hour or so later run water through the media equal to about twice the volume of the pot. The second watering flushes the salts dissolved by the first watering.

**REST PERIOD:** Winter days average 71-76F (22-24C), and nights average 45-47F (7-8C), with a diurnal range of 24-29F (13-16C). However, plants cultivated in Chiang Mai, Thailand indicate that they adapt to winter temperatures about 10F (6C) warmer than indicated by the climate data. Rainfall is low for 4-6 months in winter, but for much of the dry season, some additional moisture is available from dew, fog, and low clouds. For about 2 months in late winter or early spring, however, conditions are so dry that even moisture from dew is uncommon. In cultivation, water should be reduced but not totally eliminated. Plants need an occasional early morning misting and a light watering once every two weeks or so. Water is most beneficial when bright, sunny weather is expected. Plants should be somewhat drier with only occasional mistings for 1-2 months in late winter or early spring. Fertilizer should be reduced, or preferably eliminated, anytime water is reduced. Light should be as high as the plant can tolerate, short of burning the foliage. Necessary winter light levels are sometimes difficult to provide for plants grown at higher latitudes, especially in regions with a predominance of dark, gray, cloudy weather. If necessary, natural light may be supplemented with artificial lights.

**GROWING MEDIA:** Plants are usually grown in hanging pots or slatted wooden baskets filled with a very open, chunky, fast draining medium. Some are grown with only enough open chunky medium, such as charcoal, wine corks, or large cork chips, to anchor the plant until it becomes established. Roots should be allowed to grow and hang down as far as they choose and should not be trimmed to make a plant look neat. Growers indicate that anything more than minimum root trimming may set the plant back 2-3 years. Continuous brisk air movement around the roots is very important.

**MISCELLANEOUS NOTES:** The bloom season shown in the climate table is based on cultivation records. In nature, plants bloom in autumn.

#### **Plant and Flower Information:**

**PLANT SIZE AND TYPE:** A moderate to large, 30-59 in. (75-150 cm) long by up to 20 in. (50 cm) wide monopodial epiphyte.

**LEAVES:** 3-10 in. (8-25 cm) long by about 1 in. (2.5 cm) wide. Each plant carries are numerous, closely arranged, strap shaped, rigid, leathery leaves. Horizontal leaves grow in two rows along the stem. They are usually yellow-green, deeply channeled on the top surface, and keeled on the bottom, with unequally notched tips. The lower leaves drop after several years.

**INFLORESCENCE:** 8-24 in (20-60 cm) long. The branching inflorescence is usually erect or gracefully arching. It emerges from the base of mature leaves on the lower part of the stem. Flowers are attractively spaced along the branching inflorescence.

**FLOWERS:** 5-15. Blossoms are 3-4 in. (8-10 cm) across and last 4 weeks or more if kept cool after opening. Flowers are extremely variable in size, shape and color. Sepals and petals are typically pale blue with darker, fish-net like veins. However, they may be darker blue, white, or even pink. The darker veins are not always present. The small lip usually has a very dark purple-blue mid-lobe with whitish sidelobes. Petals are often twisted so that the back surface faces forward. However, most plants now in cultivation have been bred from selected clones so that this undesirable trait is greatly reduced or even absent. Grove (1984) reported that cool night-time temperatures act as the trigger for the plant's production of anthocyanins which cause the darker color tones in the flowers. He pointed out that growers in Chiang Mai usually get deeper colors in *Vanda coerulea* and its hybrids than do growers in Bangkok where nights are much warmer.

**HYBRIDIZING NOTES:** Chromosome count is  $2n = 38$ . *Vanda coerulea* has been used extensively in hybridizing programs. It tends to pass on the tendency for branched inflorescences and the attractive net-like veins or tessellations on the sepals and petals. It was crossed with *Vanda* (*Euanthe*) *sanderiana* to make *Vanda Rothschildiana*, a primary hybrid that combines the best qualities of both parents. This hybrid has itself been used extensively for breeding and is part of the ancestry of most of the modern blue vanda hybrids.

**REFERENCES:** These cultural notes are written by Charles and Margaret Baker  
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