

Climate Requirements for Flower Crop Production

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Flower crops play a major role in Indian economy and are one of the emerging sectors in horticulture and both cut flowers and loose flower has domestic and export potential. He production of quality cut flowers or flowers is entirely depends on climatic factors such as temperature, relative humidity, rainfall, light intensity. Some of the flowers require specific climate which are consider as qualitative short plant

Rose

Bright sunshine for minimum of 6 hours is essential for the cultivation of roses. Day temperature of 26⁰C and night temperature of 15⁰ C are ideal. It can be grown in the plains of Tamil Nadu where the optimum climate is available.

Parameter	Specification
Temperature	15 °C (60 °F) – 28 °C (76 °F)
Day Length	> 12 hours
Relative Humidity	77 ± 5°C
CO ₂ Enrichment	1000 – 3000 ppm
Cooling	Fan & Pad cooling; Distance between fan & pad: 30 – 60 meters
Shading	Reduces leaf scorch; Prevents flower fading
Heating	Pipe coil heat distribution with high-pressure hot water boiler; Fuel: Natural gas

Carnation

Plenty of sunshine high temp, Optimum Night temperature - spring - 12.7°C during, ($10-15^{\circ}\text{C}$) summer - $13-15.4^{\circ}\text{C}$ flowering winter - $10-11^{\circ}\text{C}$ causes abnormal, Day temperature - 18.3°C flower opening and calyx splitting

- Initially long day favors flower development.
- Carnations are long day plants, short day delay flower initiation.
- Critical photoperiod is 13 hours (standard & spray).
- Light intensity: 10 – 15-foot candle
- R H of 50-60% favours growth & flower production.
- CO_2 enrichment would increase the production - 500ppm.

Gerbera

- The optimum day and night temperature- $27^{\circ}\text{C} + 14^{\circ}\text{C}$
- For flower initiation is 23°C and
- For leaf unfolding it is $25-27^{\circ}\text{C}$
- The optimal level of CO_2 - 600 and 800 PPM.
- Approximately 400 w/m^2 light intensity is required

Orchids

- Light requirement depends on latitude.
- Cypripedium and Phalaenopsis - 200–300-foot candles
- Vanda and Aranda thrive best under 800-foot candles
- Maintenance of proper humidity -50 to 70 per cent
- The best suitable temperature range is 18°C to 30°C
- A difference of 10°C - 20°C between day and night temperature is beneficial
- Indirect sunlight is ideal for orchids
- DAY NEUTRAL and are not influenced by day length
- RH: 30% at night and 80% during day time

Anthurium

Temperature and Relative Humidity For cut flowers:

Relative humidity - 70-80 per cent.

Day temperatures - $25-32^{\circ}\text{C}$

Night temperatures - $21-24^{\circ}\text{C}$

For Indoors plants: 16°C - 22°C + lower light

For *A.scherzerianum* : 20-27°C - day temp

15-21°C - night temp

Light intensity 1,500 to 2,500 f.c (1627 k lux).

For *A.scherzerianum* - 1,000 & 1,500 f.c. (11-16k lux).

60-80 % of full sunlight

Lilium

Liliums are the best grown in green houses day temperature of 18-22°C and night temperature of 10-15°C are ideal.

Jasmin

- Jasmine prefers mild and tropical climate. Jasmine is commercially grown in India under open field conditions. The ideal requirements for successful cultivation of jasmine are mild winter, warm summer, moderate rainfall and sunny days. Jasmines grow well upto 1200 m. A well-distributed annual rainfall of 800 to 1000 mm is optimum for growth and development. Day time temperatures of 27-32°C and night temperatures of 21-27°C are ideal. If night temperatures fall below 19°C, flower production and size are reduced.

Chrysanthemum

Tropical and subtropical climatic conditions are ideal. Best temperature for growing chrysanthemum is 20-28°C for day and 15-20°C for night. Since chrysanthemum is a short-day plant, planting should be done such that flowering coincides with short day conditions. Chrysanthemum is very much influenced by light and hence photoperiod should be regulated.

Under Tamil Nadu conditions, it is planted during April-May. So, that it flowers during September - December.

Growth phase	Weeks from planting	Photoperiod
Vegetative phase	Up to 4-5 weeks from planting till the plant attains 50 to 60 cm height	Long day: 13 hrs light and 11 hrs dark
Flowering	5 -6 weeks after planting till harvest	Short day: 10 hrs light and 14 hrs dark

Lisianthus

Lisianthus are heat loving plants that bloom best where nights are warm. They do not perform well in the Pacific Northwest or other areas with rainy, humid summers. They can be grown in greenhouses for winter time cut flowers.

Tuberose

- Grows in mild climate
- Temperature range 15 and 35°C
- Temperature above 35°C reduces the spike length and quality of the flowers.

Marigold

- African marigold flowered under long day at temperature of 21.1 – 23.9°C
- All of the cultivars except those of African type (*T. erecta*) are intermediate in their day length requirement. Marigold is a short-day plant

Crossandran

It requires a temperature of 30 - 35°C for growth. It is shade tolerant to some extent but susceptible to low temperature and frost.

Nerium- Tropical and subtropical conditions

Hibiscus

It requires 4-8 months night temperature of not below 20°C and it requires 12-13 hours sunlight for the first 5 months of growth to prevent premature flowering. Hibiscus plant requires the monthly rainfall of 5"-10" during the first four months of the growth.