

CARNATION (*Dianthus caryophyllus* L.)

Carnation a member of family Caryophyllaceae, is native of the Mediterranean region. The wide range of colors and excellent keeping quality has made it one of the most demanding cut flower in the world.

Types and exotic varieties

Standard carnations: This type produces one large bloom on a long flower stalk.

Varieties are Acropolis, Firato, Exotica, Baltico, Noblesse, Java, Montezuma, Texas, White Tundra and Design etc.

Spray carnation: This type produces many flowers of smaller size in a bunch. Varieties are Natila, Alliance, Rony, Reflection and Barbara etc.



Growing environment

Carnation requires a day temperature of 18 QC, night temperature 10-12 QC in winter and 12-15 QC in summer. At the initial stage of flower development long days play an important role whereas the later stages of bud development are influenced by light intensities. The critical photoperiod of carnation is 13 hours. 50-60 per cent relative humidity is suitable.

Soil

A rich sandy loam or loam soil is ideal with a pH 6-7. The best ratio of soil mixtures is 50 % sand, 30 % loam and 20 % clay.

Nursery raising

October-February is suitable for NEH region to get flowers during April-June. Rooted cuttings are planted at a spacing of 20 cm x 15 cm (30 plants/m²). For better growth and flowering the cuttings are always planted shallow depth. Cuttings are planted 3x3 cm Spacing in soil less beds or in black polythene.

Propagation

Soft terminal cutting (10-15 cm) having 4-5 nodes are taken from healthy mother plants and their lower 1-2 pair of leaves are removed just before transplanting. Cutting should be treated with Carbendazim solution (0.1 %) to reduce the fungal disease.

Nutritional requirements

In first 3 weeks after planting, no chemical planting fertilization is required. There after a total 80g P₂O₅, 200g K₂O, 125g, Ca and 40g Mg/m²/year in 2-4 splits at fortnightly intervals give quality flowers.

Irrigation

During first three weeks after planting overhead misting followed by mild drip fertigation provide necessary condition for establishment of cuttings. After 3 weeks of planting, drip irrigation has to be adopted. The crop requires 4 to 5 litres of water/m²/day.

Intercultural operation

Usually lateral buds about 6 nodes below the terminal flower bud are removed to encourage the development of main flower bud. Carnation should be disbudded. Pinching of all lateral buds is generally done in the morning, when the plants are fully turgid.

Plant protection

Insect /pest: Thrips and aphids suck the sub from the leaves and reduce plant vigour also transmits the virus. Spraying the plant with Rogor 0.1-0.2 % is suggested. Regular spray of Endosulfan 0.05 % at fortnightly interval controls the caterpillar.

Fusarium rot: Initial symptom of the disease is chlorosis and wilting of lower leaves and shoots. Affected leaves and shoot wither and die. Drenching of soil around the soil plant base with Carbendazim 0.1% or spraying of plants with 0.1 % Dithane M-45 +0.1% Bavistin at fortnightly interval is quite effective.

Alternaria leaf spot: The fungus causes spot on the leaves and stems, which results in wilting and premature dying. Spraying Mencozeb or Captan 0.2% at fortnightly interval is quite effective.

Grey mould: It more prevalent when there is high humidity inside the polyhouse. It is suggested to reduce humidity inside polyhouse.

Viral diseases: Most common viruses in carnation are streak, mosaic, mottle, ring spot, etched ring and vein mottle. Use of virus free planting material raised from shoot tip culture will be helpful.

Harvesting and Yield

Carnation flowers are harvested when outer petals have unfolded nearly perpendicular to the stem. For long term transportation and packing convenience they are also harvested at paintbrush stage. The flowers must be placed in bucket with clean water or preservative solution of sodium hypochlorite (0.1%) The optimum yield for standard carnation is about 200-250 saleable flowers/m².