DEPARTMENT OF
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# GLADIOLUS

## CULTIVATION




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# GLADIOLUS

**Family:** Iridaceae,

**Scientific Name:** *Gladiolus* spp.

**English Name:** Sword lily

**Gladiolus** is the most important commercial bulbous cut flower crop in India. Growers in Kashmir valley have an added advantage of conveniently producing "off season" flowers which can be readily marketed in the plains.

**Climate and Soil:** Gladiolus can be grown in a wide range of climatic conditions varying form temperate to tropical with a day temperature range of 15-20$^0$C. Gladiolus thrives in sunny situations throughout their growing duration. Gladiolus is grown on a wide range of soils. However, moisture retentive, well drained sandy loam soils having a pH of 6.5-7.5 are most suited for cut flower and corm production.

**Varieties:** White Prosperity, Eurovison, Peter pears, Rose Supreme, Apple Blossom, Big Time Supreme, Jackson Villa's Gold, Moralla, Peter Pears, Priscilla, Vinks Glory, White Friendship, and Wind Song, Nova Lux, Wine and Roses.

**Cultivation:** Gladiolus is most ideally suited for open cultivation under Kashmir conditions.

**Propagation:** Propagation is done through multiplication of corms and cormels.

**Planting time:** March to June preferably staggered at 15 days interval to extend period of availability of flowers in the market.

**Planting method:** Corms of 5.1- 5.5 cm dia. are planted in rows (20-30 cm apart) at a spacing of 15 cm. Planting depth should be 8-10 cm. However, spacing of 20 × 20 cm (row × plant) is also recommended for cut flower production. Corm requirement is around 10,000 per kanal.

**Crop duration:** Gladiolus is grown as an annual crop. Duration extends from April to October depending upon the variety and time of planting.

**Manures and fertilizers:** Well rotten sheep manure/FYM may be applied @ 1.0-1.5 tonnes per kanal in autumn for planting of gladiolus in spring. A fertilizer dose of 10.0, 5.0, and 5.0 kg N, P and K per kanal, respectively is recommended. Apply whole of P and K at the time of field preparation. Nitrogen should be applied in 3 splits - at the time of planting, at the timeof emergence of spikes and after harvesting of spikes.

**Irrigation**: There should be sufficient moisture in the field for sprouting. Ensure sufficient moisture at the time of spike emergence. Irrigate once in a fortnight during dry hot weather. Stop irrigation a fortnight before harvest of corms.

**Weeding and hoeing**: - Hoeing twice in densely planted crop and thrice in widely spaced crops will be required for keeping the soil well aerated and the weeds suppressed.

**Staking:** Stakes of kikar, Ulmus, Nettle trees etc should be driven in the ground along the rows on both sides of bed and then the jute thread (Sutli) or nylon thread or G.I wire be passed in 2 or 3 parallel rows, for preventing plants from toppling over.

**Flowering**: Flowering time depends upon the time of planting and variety planted. Under Kashmir conditions flowering can extend from middle of July to last week of September if staggered planting is employed.

**Rotation:** Crop rotation is recommended for control of some serious soil borne disease like rots, fusarium wilt etc. The crop can be rotated with any seasonal flower or legume crop.

**Harvesting:**

**Flowers:** For local market spikes can be harvested when 4-5 basal florets are open. Spikes for distant market should be harvested when 2-3 basal florets show colour.

Corms: Digging of corms is done when leaves turn yellow or brown and start to dry out.

**Yield:** At a spacing of 20 × 20 cm yield is 10,000 spikes/kanal. Corm yield varies from 12500-15000 corms per kanal besides numerous small corms and cormels.

**Post-HarvestManagement:**

**Flowers**: Cut spikes should be placed in buckets containing clean water up to 15 cm from base and kept in shade till shifting to packing and storage house. Pulsing with 5% sucrose + aluminum sulphate 300-400 ppm/ Citric acid 1000 ppm for 8-10 hours is beneficial for enhancing shelf life. For distant markets graded spikes are bundled in units of 10 and tied together with the help of rubber bands. The spikes should be held in erect position to prevent bending.

**Corms:** After digging corms should be placed in shade for 4-5 days. Separate the exhausted mother corm from the daughter corms and cormels. Remove extraneous soil and dirt from the corms and treat with fungicide. Corms can be stored under ambient room temperature in well ventilated conditions. Place not more than 2-3 layers of corms in plastic/woodentrays. Periodical inspection of corms for disease development is a must.

**Diseases and pests:**

1. **Fusarium rot and yellows and dry corm rot:** It causes curving, bending, stunting and yellowing or drying of leaves. The disease is characterized by dry rot of corms in storage.
2. **Spongy or soft corm rot:** Initially small red bordered and rusty coloured specks may develop on leaves and stems and colourless spots on the flowers. Fungus reaches the corms and causes core rot.
3. **Dry or neck rot/root rot:** It manifests on stored corms as small dark more or less superficial spots or lesions which can also produce collor rot
4. **Storage rot:** Large reddish brown sunken lesions and numerous cream and pinkish resting bodies are seen on the corms particularly in the centre of the lesions.

**Management:**

1. Cure corms and cormels. Dip corms/cormels in hot water at 53-55$^{0}$c or in carbendazim 50 WP (2g/l) or mencozeb 75 WP (3 g/l) for 30 minutes and dry them before storage.
2. Avoid storing in heaps. Store in plastic/wooden trays in 2-3 layers.
3. Periodically inspect the corms/cormels in storage and discard the diseased lots.
4. Adapt rotation of the fields.
5. Spray the crop with Carbendazim 75 WP (0.5 g/l) or Ziram 80 WP (2 g/l) or copper oxychloride 50 WP (3 g/l) 3 times at an interval of 10-12 days starting from first appearance of the disease

**Pests:** The most commonly occurring pests in gladiolus are thrips, aphids which can be controlled by spraying with malathion (0.5-1.0 ml/l).

**Approximate gross returns:** Rupees 32,000.00/kanal from sale of cut flowers (calculated at a sale rate Rs. 4.00 per spike). This is besides the recurring returns from the sale of corms and cormels.