DEPARTMENT OF
SCIENCE AND TECHNOLOGY
MINISTRY OF SCIENCE AND TECHNOLOGY
GOVERNMENT OF INDIA

LILIUM

CULTIVATION

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Lilium

Family: Liliaceae,

Scientific Name: *Lilium* spp.

English Name: Lily

Lilium is one of the top ten flowers of the world. Due to their large size, attractive colours/shapes, and the vase life of more than a week they are in very high demand in the market. Popularity of lilium as cut flowers has increased appreciably in subtropical countries also. With the advancement of the forcing technology, Lilium bulbs are now available throughout the year and in congenial climatic conditions Liliums can be grown all the year round. Among different Liliums oriental and Asiatic hybrids are the most important.

Climate and Soil:

Night temperature of 10-12°C and day temperature of 22-25°C is optimum for lily cultivation. During summer months, plants should be grown under 35-50% shading net. Higher temperature will produce short plants, with a smaller number of flower buds/spike. Lilies can be grown in all types of soils. However, well drained soils having a minimum depth of 40 cm with pH ranging from 6.0-7.0 are ideal.

Varieties:

1. **Asiatic lilies:** Enchantment, Dreamland, Navonna, Connecticut King, Alaska, Sterling Silver

2. **Oriental Lilies:** Stargazer, Siberia, Casablanca, White Mountain, Cascade, Marco Polo, Olympic Star.

Cultivation: Commercial cultivation of lilies in valley is recommended under polyhouse conditions. However, lilies can also be cultivated profitably in open.

Propagation: Lilies are mainly propagated through scales.

Planting time: Planting of the bulbs can be done in late autumn, February- March under polyhouse conditions. Planting of pre-frozen bulbs can also be extended up to July under shade net.

Planting method: Lilies are grown on raised beds about 20-30 cm high. The bulbs should be placed 10-15 cm deep. Bulb size generally used is between 10-12 cm to 14-16 cm in case of Asiatic hybrids and 16-18 cm in case of oriental hybrids. A 15 cm bulb to bulb distance and 25 cm inter row distance is recommended. Generally, 4000 and 3000 bulbs are required for 100 sq.m net sown polyhouse area in Asiatic and Oriental lilies, respectively. Higher planting densities can also be employed under more intensive crop management regimes.

Crop duration: Varies from 10-13 weeks in case of Asiatic hybrids and 14-18 weeks in case of Oriental hybrids.

Manures and Fertilizers: Well rotten FYM @ 2.0 kg per sq.m should be thoroughly mixed with soil before planting. Inorganic fertilizers at 20: 20: 15 g per sq.m N, P and K should be applied before planting. Avoid use of super phosphate fertilizer as fluoride in them is toxic to lilies.

Irrigation: Liliums require a fair amount of water. During dry spells irrigation is needed on alternate days or as soon as top layer of the soil dries out. **35Weeding and hoeing:** Regular weeding and hoeing operations are to be carried at least till flowering of the crop**.** Do not use herbicides as it risks crop loss. Opt for manual weeding instead.

Staking: In windy areas, bamboo sticks 80 cm long are used for staking the crop.

Shading: The plant should not be grown under direct sunlight. Crop should be shaded during cultivation with a 35% net to improve spike length and quality.

Flowering: Flowering takes place from May onwards under valley conditions. Flowering can be extended upto October if prefrozen bulbs are used for plantation under shade net in summer.

Harvesting

Flowers: Harvesting is done when the first bud of a five-bud spike shows color. Stems having 5-10 buds should be harvested when two show color. Harvest in the morning hours. Cut spikes at least 15-20 cm above ground.

Bulbs: Bulbs are harvested after yellowing of leaves around 45 days after flower harvest. Bulbs can also be retained in soil for a maximum of three years.

Yield: Average yield is up to 3500-4000 spikes in case of Asiatic hybrids and bulb yield varies from 4200-4500 bulbs per 100 sq.meter area. In case of Oriental hybrids flower yield is 2800-3000 and bulb yield varies from 3200 to 3500 per 100 sq.meter area.

Post-HarvestManagement:

Flowers: Immediately place the cut spikes in buckets containing 15 cm of clean water. Pulsing for 5-8 hours in 5 % sucrose solution + 1000 ppm citric acid increases the vase life.

Bulbs: Lily bulbs are naked or non-tunicated structures. Hence protection against loss of moisture is essential. Lily bulbs can be left in the ground if proper storage facilities are not available. Lily bulbs treated with 0.1% caabendizium are best stored in crates filled with moist peat.

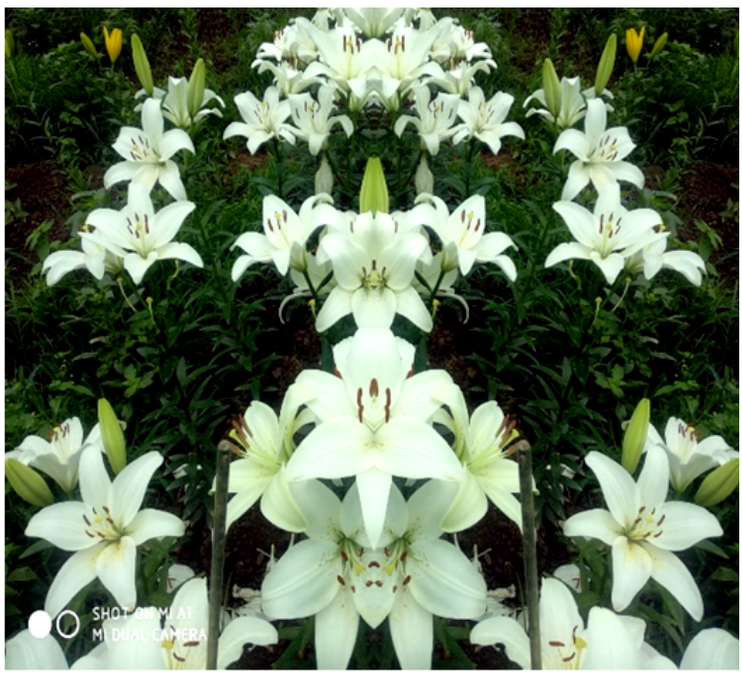
Diseases:

Foot rot: Infected plants topple over and die. Good drainage is very important to prevent the disease. Remove affected plants immediately.Dust bulbs with quintozene. Application of Bordeaux mixture or other copper fungicides is helpful.

Bulb rot: Lower leaves become yellow or purple and dry prematurely. Control measures include removal of infected plants. Steam sterilization or chemical treatment of soil helps in controlling the disease. Application of difolatan or benzimidazole on bulbs and scales is useful.

Pests: Aphids are common under Kashmir conditions. Spraying with Dimethoate 30 EC @ 2.0 ml/l is useful.

Approximate gross returns: Up to rupees 50,000 per 100 sq.mpolyhouse area per production cycle from the sale of cutflowers at a sale rate of Rs. 13.00 per cut flower. This is besides the returns on the recurrent production of surplus bulbs.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