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# Center for Smart Agriculture

## Protected floriculture



**Module 3:** Production technologies followed for  
Protected cultivation of different flowers  
**Session 20:** Protected cultivation of liliium



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# INTRODUCTION

Common name: Liliium

Scientific name: *Lilium spp.*

Family: Liliaceae





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# Soil and Climate

- Well drained soil, rich in organic matter and having pH 6.5-7.5

## Growing medium

- soil: peat moss:: 1:1
- soil: peat moss: perlite:: 1:1:1

## Climate

- Temperature (Day: 18-25°C and Night: 12-18°C)
- Partial shade (40-50%)
- Good aeration/ ventilation



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# Propagation & Treatment of Bulbs

- Bulbs
- Bulblets
- Scales and
- Bulbils in *L. bulbiferum*, *L. sargentiae*, *L. tigrinum* and *L. wallichianum*

## Planting time

- Low hills: Oct.-Nov.
- Mid hills: Feb.-Mar. and July-Sep.
- High hills: March-April.





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# Planting density and spacing

•Planting density and spacing depends upon

- a) group of Liliaceae
- b) bulb size
- c) place of cultivation

**Planting density** : 20-40 bulbs/m<sup>2</sup>

**Spacing**: 40 cm X 15 cm





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# Intercultural operations

## Weeding

Three-four hand weeding and herbicides like Propyzamide @ 2.25kg/ha and chloropham 3.5 l/ha are applied as pre-emergence.



**Staking in liliium**



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# Nutrient management

- NPK:: 30:20:20 g/m<sup>2</sup>
- For liquid feeding of NPK::14:10:14
- Fertilizers should not come in direct contact with bulbs as it leads to rotting.



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# Water management

- Soil should have 60-90 per cent moisture and no watering is required until bulbs sprout.
- Depending upon weather 8-12 irrigations of 2.5-5 cm depth are required.





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# Harvesting and Storage of Bulbs

## Harvesting Stages

- **Local market:** When 1-2 florets open
- **Distant market:** When 1-2 florets show colour.
- Cut stems few centimeter above ground level for increasing bulb size.

## Storage of Flowers: 1-2°C

- Harvest bulbs after 40-50 days of flowering or foliage start turning yellow.
- Store the bulbs in moist sand at -2° C for initial three weeks and later on at 0-2°C until two weeks before planting.
- In hilly areas, bulbs can be stored in moist moss and sand.



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# Diseases

- Gray mould (*Botrytis elliptica*, *B. cinerea*)
- Soft bulb rot (*Rhizopus stolonifer*)
- Fusarium bulb rot (*Fusarium oxysporum f. lili*)
- Brown scale (*Colletotrichum lili*)
- Root rot (*Pythium splendens*)
- Bacterial soft rot (*Pseudomonas* spp.)
- Viral diseases (mosaic)



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# Insect pests

- Aphids
- Thrips
- White flies
- Mites



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# Physiological Disorders

- **Leaf scorch:** It is due to deficiency of Mn, Al which occur at over dose of nitrate level and add lime @ 10 ton/ha.
- **Bud blast:** It is due to storage of water at top of plant, competition for nutrients, fluctuating carbohydrate level, low light intensity and high nitrate level.
- **Puffy foliage:** It is due to frost injury and stunting of plants.



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# Thank you