



**Centurion**  
**UNIVERSITY**

*Shaping Lives...  
Empowering Communities...*

# Center for Smart Agriculture

## Floriculturist



**Module 3: Cultivation practices of important flower crops**

**Session 12: Cultivation practices of tuberose**



**Centurion**  
**UNIVERSITY**

*Shaping Lives...  
Empowering Communities...*

- ✓ It has a great economic potential for cut flowers trade and essential oil industry.
- ✓ The predominant characteristics of this crop are its lingering, delightful fragrance and excellent keeping quality.
- ✓ They are used for making artistic garlands, floral ornaments, bouquets and buttonholes.





**Centurion**  
**UNIVERSITY**

*Shaping Lives...  
Empowering Communities...*

## There are three types tuberose

- ✓ Single
- ✓ Semi-double
- ✓ Double and variegated

### Cultivars

1. Rajat Rekha
2. Swarna Rekha
3. Shringar
4. Suvasini
5. Prajwal
6. Vaibhav





**Centurion**  
**UNIVERSITY**

*Shaping Lives...  
Empowering Communities...*

## **Soil**

- ✓ Tuberose can be grown on wide variety of soils from light, sandy loam to a clay loam.
- ✓ The soil should be at least 45 cm deep, well drained, friable, rich in organic matter
- ✓ The soil should have a pH range from 6.5 to 7.5 with good aeration.

## **Climate**

- ✓ The crop is best suited for cultivation in tropical to subtropical and temperate climates.
- ✓ The crop is reported to flower profusely throughout the year, if the climate is mild and free from extremes of high and low temperature.
- ✓ A temperature range from 20-30°C is considered ideal for this crop.



**Centurion**  
**UNIVERSITY**  
*Shaping Lives...  
Empowering Communities...*

## **Season of planting**

- ✓ Tuberoses are generally planted in February-March in the plains and April-May in the hills.
- ✓ The bulbs can also be planted during July-August.
- ✓ Tuberoses can be planted all year round in Bangalore, but a higher flower-yield is obtained from the April-May planting.

## **Land preparation**

- ✓ The land is ploughed deep, twice, to a depth of 45 cm.
- ✓ At the time of the second ploughing apply FYM @ 20-50 t/ha and incorporate into the soil.
- ✓ Then the soil is brought to a fine tilth by breaking the clods and removing the weeds.
- ✓ The field is laid out into plots of convenient sizes with irrigation channels, ridges and furrows at the recommended spacin.



**Centurion**  
**UNIVERSITY**  
*Shaping Lives...  
Empowering Communities...*

## Propagation

- ✓ Propagation by bulbs is the most common method of multiplication of tuberous.
- ✓ If early planting is desired, the dormancy can be successfully broken by dipping the bulbs in 4% Thiourea solution for one hour.
- ✓ Spindle-shaped bulbs with a diameter of 2.6 to 3 cm size are used for planting.
- ✓ However, if the bulbs are very large they may be cut into 2-3 vertical sections, each containing a bud and part of the basal plate.
- ✓ Each of these sections is treated with copper fungicide and planted vertically with their tips just showing above the surface.





**Centurion**  
**UNIVERSITY**

*Shaping Lives...  
Empowering Communities...*

## **Planting**

- ✓ A spacing of 15 x 20 cm (Maharashtra)
- ✓ 25 x 25 cm (West Bengal)
- ✓ 30 x 30 cm (Lucknow)
- ✓ 30 x 22.5 cm (Bangalore)
- ✓ 20 x 20 cm (for other part of South India) have been recommended for this crop.

## **Fertilizer application**

- ✓ 100 kg N, 60 kg P<sub>2</sub>O<sub>5</sub> and 40 kg K<sub>2</sub>O /ha is recommended for tuberose production.
- ✓ Of the full recommended dose of fertilizers, half the N, the full dose of P and K has to be applied at the time of planting and the remaining half of N is given as a top-dressing after 45 days of planting.



**Centurion**  
**UNIVERSITY**  
*Shaping Lives...  
Empowering Communities...*

## **Irrigation**

- Subsequently, the crop is irrigated at 5-7 days intervals depending upon weather conditions.
- In the summer months, irrigation is recommended twice a week.

## **Effect of Growth regulators**

- ✓ Application of both CCC at 5000 ppm and GA3 at 1000 ppm results in early flowering, increased flower stalk, number of flower florets production and improves the quality of flowers

## **Intercultural operations**

- In order to keep the plots free of weeds and to avoid the exposure of bulbs, the plots are weeded and earthed-up once a month.
- The application of Atrazine (@ 3 kg/ha) as a pre-emergent weedicide keeps the plots weed-free.





**Centurion**  
**UNIVERSITY**  
*Shaping Lives...  
Empowering Communities...*

## **Pests of tuberose**

- Aphids
- Grasshoppers
- Red spider mites
- Thrips
- Root-knot nematode and greasy streak nematode

## **Diseases of tuberose**

- ✓ Stem rot
- ✓ Flower Bud rot
- ✓ Leaf blight or Botrytis blight
- ✓ Alternaria leaf spot





**Centurion**  
**UNIVERSITY**  
*Shaping Lives...  
Empowering Communities...*

## Harvesting and yield

- ✓ Flowers are ready for harvest in about 3 to 3 1/2 months of planting.
- ✓ Depending on the purpose, harvesting is done by cutting the fully-opened spikes from the base or single flowers are harvested as they open by day; the picking of individual flowers should be completed by 8.00 a.m.
- ✓ Flowers yield up to 17-18 t/ha can be expected from a well-maintained crop.





**Centurion**  
**UNIVERSITY**

*Shaping Lives...  
Empowering Communities...*

## **Lifting, curing and storage of bulbs**

- Bulbs reach maturity at the cessation of flowering when the leaves become yellow and dry.
- At this stage, irrigation is withheld and the soil is allowed to dry.
- The leaves are cut off at the ground level and the bulbs are dug out.
- After digging, the bulbs are lifted out and the adhering earth shaken off neatly and thoroughly.
- The offsets are then separated out by hand, which are used as seed-stock for the next season.
- The bulbs are the graded based on the size into mature (> 1.5 cm diameter) and immature (< 1.5 cm diameter).
- Cleaned and graded bulbs are placed on sheaves to dry or cure.



**Centurion**  
**UNIVERSITY**

*Shaping Lives...  
Empowering Communities...*

