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LECTURE -12

PRODUCTION TECHNOLOGY OF TUBEROSE

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- ✓ 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.
- ✓ The variegated ones with beautiful golden stripes on foliage margins are very attractive and suitable for garden display.



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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

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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.

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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.

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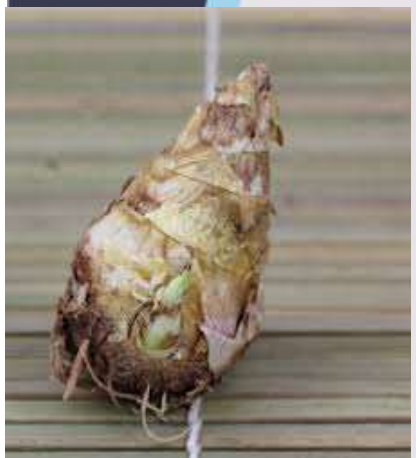
Propagation

- ✓ Propagation by bulbs is the most common method of multiplication of tuberoses.
- ✓ 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.



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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_2O_5 and 40 kg K_2O /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.

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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.

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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

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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.

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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.