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# Center for Smart Agriculture

## Floriculturist



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

**Session 10: Cultivation practices of rose**



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## **Introduction**

- ✓ The rose is one of the oldest flowers in cultivation and most popular of all garden flowers.
- ✓ The rose is an ornamental shrub with upright or climbing stem.
- ✓ Roses can be one of the more profitable flower crops to grow, but also one of the most Difficult.

## **Importance and uses**

- ✓ Cut flowers
- ✓ Garden display
- ✓ Pot plants
- ✓ Perfume and allied products like

Rose water

Rose oil

Gulkand

Pankhuri

Gulroghan





# Cultivars of Rose



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Nehru Centenary



Lahar



Pusa Abhishek



Pusa Gaurav



Pusa Ajay



Pusa Mohit



Pusa Shobhit



Pusa Arun



Pusa Pitamber



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## Climate

- The temperature should be maintained between 15-18° C.
- 6000-8000 ft candles or 6-8 K is good for roses.
- In general rose requires bright sunshine for the whole day.
- Humidity is maintained between 50-60% in poly house during hot summer months.
- CO<sub>2</sub> level of 1000ppm is ideal for quality bloom production of rose.
- In open field condition ideal temperature is 15-28°C and humidity 75%.





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## Soil

- Although any soil is good for rose cultivation. However, for proper drainage, the medium loamy soil with sufficient organic matter is essential.
- It grows well in a soil with a pH of 6.0 to 7.5

**Planting:** There are two types of planting systems

**1. Pit system:** 45 cm<sup>3</sup> (Length x Breadth x Depth)

**2. Trench system:**

- 60 - 75 cm wide
- 30-45 cm height
- Any length depending upon availability.
- 60-90 cm pathway



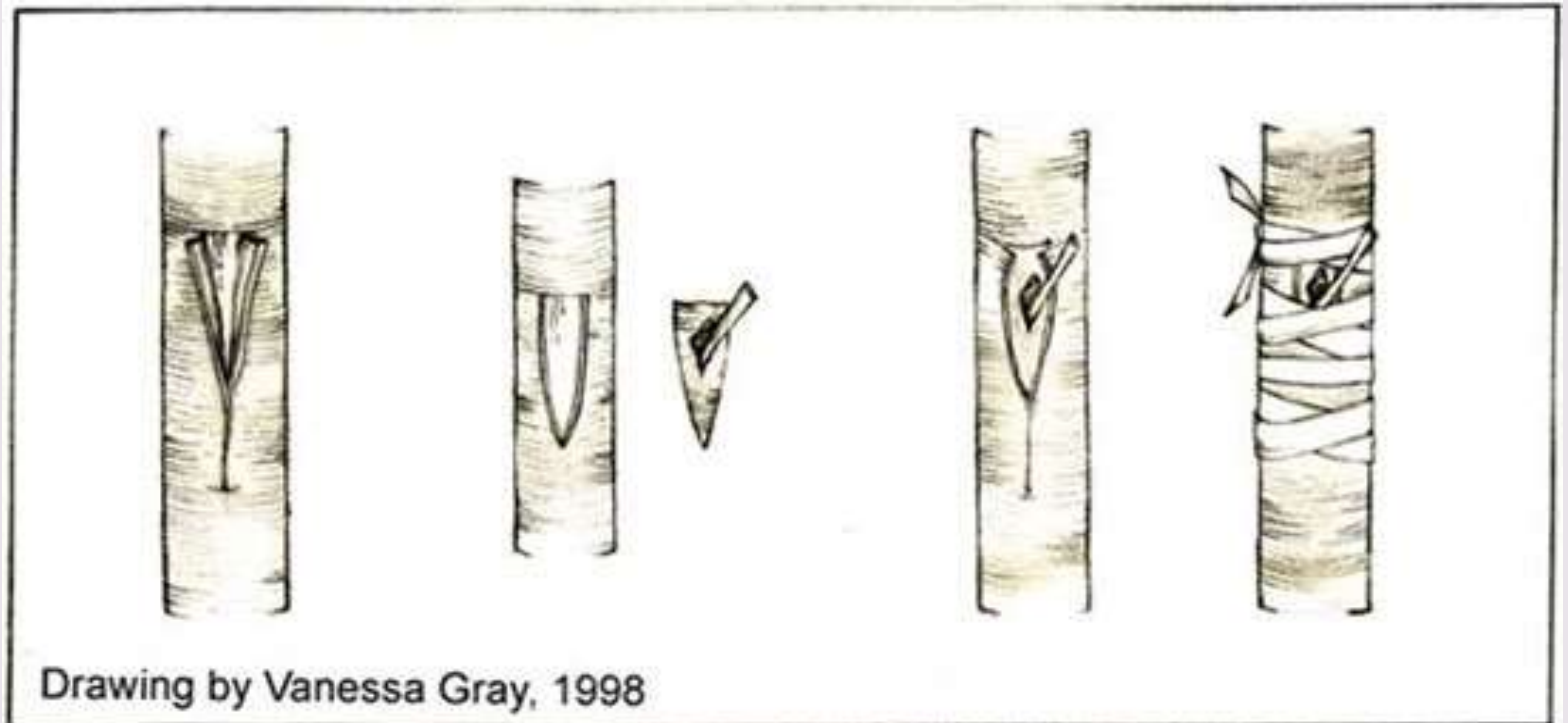


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## Propagation

- Commercial method:- **T budding**
- Dormant eyes on a scion of chosen variety are budded by T method on a rootstocks.
- Rootstock:- *R. multiflora* is more suitable for southern parts as indicated by research done at IIHR. Bangalore.
- Budded plants take less time to build up and produce economic production in short time.



Drawing by Vanessa Gray, 1998



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## Spacing

- ✓ Protected cultivation: 60x30 cm, 30x20 cm, 30x30 cm
- ✓ Outdoor cultivation: 75x75 cm for Hybrids, 60x60 cm for other varieties.

## Irrigation

- ✓ Adequate soil moisture is very much essential throughout the vegetative and flowering stages of roses.
- ✓ In general water the rose beds once in a week or 10 days in winter and twice a week during the summer season.
- ✓ Drip irrigation is ideal for roses.



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## **Manures and fertilizers**

- The recommended fertilizers dose for rose is 10: 10 : 15 g of NPK / plant after each pruning.
- Along with this 100 g of rose mixture (complex) has to be given normally twice a year i.e. after each pruning.
- First dose – 15 days after pruning (when the new growth has started)
- Second dose – After the first flush is over.
- Third dose – After second flush is over, before the spring blooming.
- FYM – 05-10 kg / bush

## **Weed Management**

- ✓ Manual weed control is effective if done frequently.
- ✓ Chemical control is economical, convenient and effective.
- ✓ Diuron @ 2 kg ai/hac or Oxyfluorofen @0.5 kg ai/hac.





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## Mulching

- It conserve soil moisture.
- Supply humus.
- Suppress weeds.
- It is done with paddy straw, dried leaves.
- Also promotes growth and flowering.
- It promotes physical properties of the soil.





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## Pruning in Roses

- Pruning refers to the removal of certain portion of the plant.
- To improve the floriferousness and quality of flowers along with vigour of roses

### Types of pruning

There are three types of pruning practiced in rose viz.

***Light pruning:*** Cut either at the 2nd or 3rd eye bud immediately below the flower bearing stalk.

***Moderate pruning:*** Healthy shoots are pruned back to 45-60cm from the base

***Hard pruning:*** Pruning is done by leaving 10-30cm from the bud joint.



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## Special cultural practices

- 1. *Thinning*:** Removal of the undesirable growth like inward growth, weak stems, blind shoots, crowded growth.
- 2. *De-suckering*:** The operation of removal of suckers from root stock i.e. the shoots produced below the bud union on rootstocks is called de-suckering.
- 3. *Pinching*:** Removal of a part of terminal growing portion of stem is called pinching.
- 4. *Disbudding*:** Removal of undesirable buds is known as disbudding.
- 5. *Removal of young vegetative shoots*:** This practice is also known as de-shooting.
- 6. *Removal of faded flowers*:** Cutting of faded flowers will force to produce strong lateral shoots which will produce good quality flowers.





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## Harvesting

- The stage at which flowers should be cut, either for decoration or for cut flower dispatch is the tight bud stage.
- When the bud shows full color but the petals have not yet started unfolding.
- Loose flowers used for preparing perfumes and various other products also for worshipping are harvested only when they are fully opened.

## Yield

- On an average the outdoor rose cultivation produces about 60-80 flowers/m<sup>2</sup>/year
- Loose flowers : 7.5 t/ha
- Greenhouse yield ranges from 100-150 stems, 200-225 and 250-350 stems per m<sup>2</sup> in large hybrid tea, medium types and small and sprays, respectively.





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## Pests & diseases of roses

**Pests** like White Flies, Red Scales, Aphids, Thrips, Chafer Beetles, Red Spider Mites, Mealy Bugs White Flies, Jassids (Leaf Hoppers), Digger Wasps, Nematodes (Root knot & lesion nematodes) etc are reported

**Disease like** Die back, Powdery mildew, Black spot, Leaf spot, Stem blight, Botrytis blight, Root fungus, Rose wilt and Rose mosaic virus are reported





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## Physiological disorders

### 1. Bull head and malformed flowers

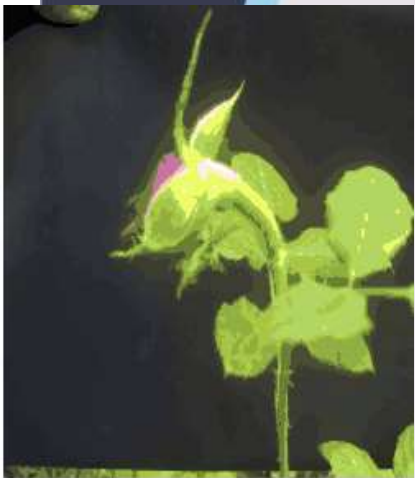
- ✓ Flattening of bud or shortening of bud, premature of buds, stunted growth of stem
- ✓ High temperature and low relative humidity, improper fertigation and irrigation management
- ✓ Boron @ 30 to 60 ppm



Bull head

### 2. Blind shoots

- ✓ No flower bud initiation
- ✓ Low temperature and low light intensity, boron deficiency
- ✓ CCC @ 500 ppm and GA @ 100 ppm, Boron @ 30 to 60 ppm



### 3. Bent Neck

- ✓ Water stress, improper management of deshooting and varietal Genetic character
- ✓ Proper irrigation management
- ✓ Proper deshooting





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## **5. Limp necks**

- ✓ The area of the stem just below the flower “wilts” and will not support the head.
- ✓ This may be due to insufficient water absorption; cutting off the lower 1 to 2 inches of stem and placing the cut stem in water at 37°C will revive the flower.

## **6. Blackening of rose petals**

- ✓ This is caused by low temperature and high anthocyanin content.
- ✓ GA3 treatment causes accumulation of anthocyanin in petals of Baccara roses.
- ✓ This effect was more pronounced at low temperature than in higher temperature in night.

## **7. Colour fading**

- ✓ This is very often associated with use of organic phosphate and various other kinds of insecticides.
- ✓ Raising the night temperature several degrees will reduce the number of off-coloured flowers.



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