LECTURE - 10

PRODUCTION TECHNOLOGY OF ROSE
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

Nehru Centenary  Lahar  Pusa Abhishek

Pusa Gaurav  Pusa Ajay  Pusa Mohit

Pusa Shobhit  Pusa Arun  Pusa Pitamber
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.
• CO₂ level of 1000ppm is ideal for quality bloom production of rose.
• In open field condition ideal temperature is 15-28°C and humidity 75%.
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 cm³ (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
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.
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.
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.
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.
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.
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.
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/m2/year

• Loose flowers : 7.5 t/ha

• Greenhouse yield ranges from 100-150 stems, 200-225 and 250-350 stems per m2 in large hybrid tea, medium types and small and sprays, respectively.
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.
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

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
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.