

Recent Advances in Rose Cultivation

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Introduction-

- Botanical Name- *Rosa centifolia* L, *Rosa damascena* Mill. *Rosa alba* L. Etc
- Family: Rosaceae
- Kingdom: Plantae
- Class: Magnoliopsida
- Genus: Rosa
- The stem is prickly.
- The leaves are alternate and pinnately compound.
- The oval leaflets are sharply toothed.
- The fleshy berry like fruit is known as hip.
- Roses have a determinate inflorescence that may assume corymbs, panicle or solitary form.



Uses

Roses are best known as ornamental plants.

- Some are used as landscape plants, for hedging.
- Roses are a popular crop for both domestic and commercial cut flowers.
- Rose perfumes are made from attar of roses or rose oil.
- Rose water, made as a byproduct of rose oil production.
- Rose hips are occasionally made into jam, jelly, and marmalade.

- Roses are also used in herbal and folk medicine.

Environmental factors:

- Temperature (Day: 18-28 and night: 15-18o C)
- Light (Photoperiod over 12 hours and intensity: 6000-8000 foot candles)
- Relative humidity (50-60 %)
- Aeration (Good in air and soil)

Soil requirement and preparation

- Preparation of soil is the key to success in roses.
- Although any soil is good for rose cultivation provided it has proper drainage.
- The ideal soil should be medium loam having sufficient organic matter, with a pH of 6.0 and 7.5.
- The soil should have a fine tilth up to a depth of 50 cm and should have a good drainage facility.
- The soil should be free from gravel, stones, brick pieces and other foreign material and exposed to sun for at least a week.
- If the soil is deficit of organic matter then 10-12 per cent of additional organic matter may be added to it.
- Upon land preparation, beds/ plots of 1- 1.5m wide and 30-40m long should be prepared.

Planting and spacing

- Before planting, the top 30 cm soil from the pits should be removed.
- The plant along with the earth ball may be gently lowered into the pit, keeping the main stem in the centre of the pit
- The bud union point where the scion joins the stock is kept just above the ground level.
- Generally, in temperate countries the bud union point is kept below the ground level.
- While planting it is necessary to spread out the roots evenly.
- The soil is returned to the pit and firmed towards the center.

- The plant must be watered copiously immediately after planting.

Spacing -

- Cut flower production – 60 x 30 cm
- Oil extraction – 2.5 x 0.5 m
- Vigorously growing cultivars- 60 x 75 cm / 75 x 75 cm
- Polyanthas – 45 cm
- Miniatures – 30 cm
- Climbing types – 3 m

Different classes of roses and Varieties-

There are different classes of roses according to the type of flowers they bear:

(A) Hybrid Tea

- This is the most important class of roses.
- The flower buds of this class are longer and look beautiful.
- The flower spikes are also longer.
- Red: First Red, Happiness.
- Yellow: Aalsmeer Gold, Gold Medal.
- Orange: Super Star, Summer Holiday.
- Bi-colour: Anvil Spark, Mudhosh.
- Scented: Avon, Granda.

(B) Floribunda

- There is profuse flowering in this class of roses but the flowers shed soon.
- That's why this class of roses is largely used for decoration and bedding purpose.
- The important varieties under this class are as follows:
- White: Iceberg, Summer Snow,
- Pink: Prema, Sadabahar,
- Yellow: Arthur Bell,
- Mauve: Neelambari,

- Orange: Doris Norman, Suryakiran,
- Bi-colour: Charisma, Mask Red.
- Scented: Angel Face, Delhi Princess

(C) Polyantha-

- The rose plants of this class are small and the flowers come in cluster.
- The main varieties of this class are Anjani, Rashmi, Nartaki, Priti, Swati, etc.

(D) Miniature –

The roses of this class are dwarf in stature and the twigs and the leaves are also small.

- The flowers of this class are used in flower arrangement:
- Red: Beauty Secret, Dark Beauty.
- White: Green Ice, Z-Trail.
- Pink: Windy City, Sweet Fairy.
- Yellow: Baby Gold Star, Kale Gold.
- Orange: Angel Ripyance.

(E) Climber

The branches of these roses are soft and spread like climber.

They flower at the end of the branches in small clusters.

They are used for raising over the pergolas and the walls.

The important varieties are as follows:

Red: Climbing Crimson Glory, Blaze.

White: Delhi White Pearl, Shelderer White.

Pink: Climbing Show Girl, Lady Water Loo.

Lemon: Miracle Neel, All Gold.

Manure and Fertilizer-

Manuring-

After pruning in October and again in July the plants are manured with FYM 10 kg and 6:12:12 g of NPK per plant.

Micronutrients -

Foliar application of 0.2% micronutrient mixture containing 20 g MnSO₄ + 15 g MgSO₄ + 10 g FeSO₄ + 5 g B (2g of the mixture is dissolved in one litre of water) can produce bright coloured flowers.

Biofertilizers -

Soil application of 2 kg each of Azospirillum and Phosphobacteria per ha at the time of planting and also mixed with 100kg of FYM and applied in pits.

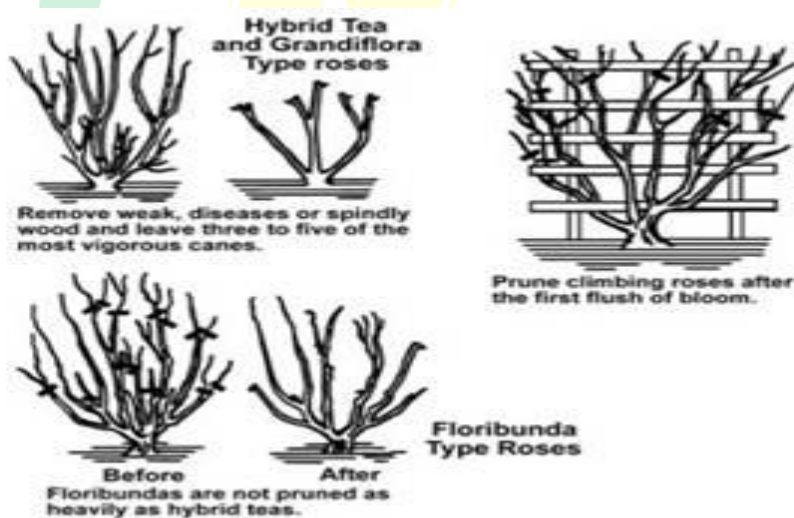
Pruning and Time of pruning-

Pruning is the removal of unwanted and unproductive portions of the plant and makes the plant more vigorous and productive.

Time of pruning –

Exactly 45 days prior to the date of requirement of flowers during October-December.

Pruning is necessary when the yield and quality declines



Diseases and their Management-

1- Dieback (*Diplodia rosarum*)

Control - For its effective control, the infected portion should be dehisced and burnt and the cut ends should be painted with Bordeaux paste, application of optimum dose of fertilizer and by facilitating proper drainage or spray of 3g/ litter of Copper oxychloride (50%).

2- Black spot (*Diplocarpon rosae*)

It can be easily controlled by spraying Carbendazim (1g/litre of water) or Captan (0.2%) fungicide at fortnightly intervals.

3- Powdery mildew

Spray Carbendazim 1 g/lit or Wettable sulphur at 2 g/lit for controlling powdery mildew

4-Botrytis Blight

Cut and destroy all infected blossoms as soon as they droop or die. Spray carbendazim @ 1 g or Chlorothalonil 2 g or Mancozeb 2 g or Azoxystrobin 0.5 g or Thiophanate methyl 0.5 g/ litre of water.

5-Crown gall

Protect plants from injury on stems during cultivation.

Maintain vigor with fertilization and watering.

Remove and destroy badly infected plants and do not replant in that area for at least five years.

Insects Pest and their management-

✚ Aphids (*Macrosiphum rosae*)

This can be effectively controlled by spraying 0.1% Malathion or Metasystox (0.1-0.2%) or Rogor (0.1-0.2%).

✚ Red scale (*Lindigapsis rosae*)

These pests can be controlled by spraying Malathion (0.1%) or Parathion (0.25%) in April and again in October.

✚ Rose chaffer beetle

Hand pick Cetonid beetles and destroy during day time. Spray Quinalphos 25 EC @ 2 ml/lit. Setup light trap to attract *Holotrichia* and *Anomala* spp to have check on the pest.

✚ White grub

White grub can be controlled Set up light to attract *Holotrichia* and *Anomala* spp. and Spray phosalone 35 EC @ 2 ml/lit.

✚ Mealy bug

Mealy bugs can be controlled by spraying Monocrotophos 2 ml/lit or Methyl parathion 2 ml/lit.

✚ Bud worm

Bud worms can be controlled by spraying Monocrotophos 36 WSC 2 ml/lit at fortnightly interval during flowering.

Physiological disorders-

Bull heads or malformed flowers-

The center petals of the bud remain only partly developed and the bud appears flat.

- They are common on very vigorous shoots, particularly bottom breaks, and it is possible that there is a lack of carbohydrates to develop the petals.
- The cause of bull heading is yet unknown, however, thrips infestation will also cause malformed flowers.
- Also at low temperature, some varieties will form bull heads.

Blind wood

- The normal flowering shoot on a greenhouse rose possesses fully expanded sepals, petals, and reproductive parts.
- The failure to develop a flower on the apical end of the stem is a common occurrence.
- Such shoots are termed as blind wood.
- The sepals and petals are present, but the reproductive parts are absent or aborted.
- Blind wood is generally short and thin, but it may attain considerable length and thickness when it develops at the top of the plant.
- This may be caused by low temperature, insufficient light, chemical residues, insect, pests, fungal diseases and other factors

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.

Colour fading

- The off- coloured flowers are seem to be a problem with some yellow varieties.
- In these varieties the petals may be green or a dirty white instead of a clear yellow.
- Raising the night temperature several degrees will reduce the number of off-coloured flowers.
- Occasionally the pink or red varieties develop bluish-coloured flowers.
- This is very often associated with use of organic phosphate and various other kinds of insecticides.

Yield-

- Loose flowers: 7.5 t/ha
- Cut flowers: 1st year: 100-120 Flowers/m²
2nd year: 200-240 flowers/m²
3rd year: 300-360 flowers/m²

