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Domain

Smart Agriculture

Course

Management of high-value cut-flowers

Project topic

Management of Dutchrose inside the polyhouse



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Irrigation

For irrigation in the Dutch rose water quality must be maintained and water quality should be of these two basic criteria:

- pH should be within the range of 6.5 to 7.0, and
- Electrical conductivity is in between the range of 0.5 – 1.0 mS/cm.

Under the protected cultivation, the Dutch rose can be cultivated with the facility of drip irrigation. Two laterals are used on one bed in two zigzag rows. The dripper discharge capacity should be within the range of 1.2 litre per hour (LPH).



Quality of Water

- **The water used for irrigation should be at room temperature.**
- **Fresh water with neutral pH is ideal.**
- **De-ionized or rainwater is used.**
- **Liquid Fertilizer can be applied later but only in very dilute amounts.**



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Nutrient Management

- Fertigation is a very common practice in nutrient management in Dutch rose.
- Initially, fertigation can be given with N: P: K 19:19:19:20 @ 2.5 g /litre of water in every two days for the first three months after seedling establishment.
- It is better to irrigate and fertilize frequently in small quantities for optimum results and always care should be taken to fulfill the requirement of the crop.





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- During flowering stage, each plant should be given 175-200 ppm of nitrogen, 50 to 100 ppm of phosphorus and 175 to 200 ppm of potassium and 10 to 30 ppm of magnesium. To fulfill the requirement of above macro-nutrients, Calcium Nitrate, Magnesium sulfate, NPK 10:0:45, 0:52:34 and 0:0:50 can be preferred.
- For supplying micro-nutrients, Manganese EDTA, Zinc Sulfate, Borax, Copper Sulfate and Aluminum molybdate can be sprayed to supply the requirement of manganese, boron, copper and molybdenum.
- Micro-nutrients can be applied as spray formulation as fortnight or monthly intervals.





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Periodically, soil analysis can be done with a frequency of two to three months and on the basis of soil test results necessary management including application of macro-nutrients should be adopted.

However, micro-nutrients may also be applied whenever deficiency symptoms appear. As a layman, one should look into the plant health after entering in the greenhouse.

The plants should look always very healthy and glossy and that is more important in raising of Dutch rose in green house.





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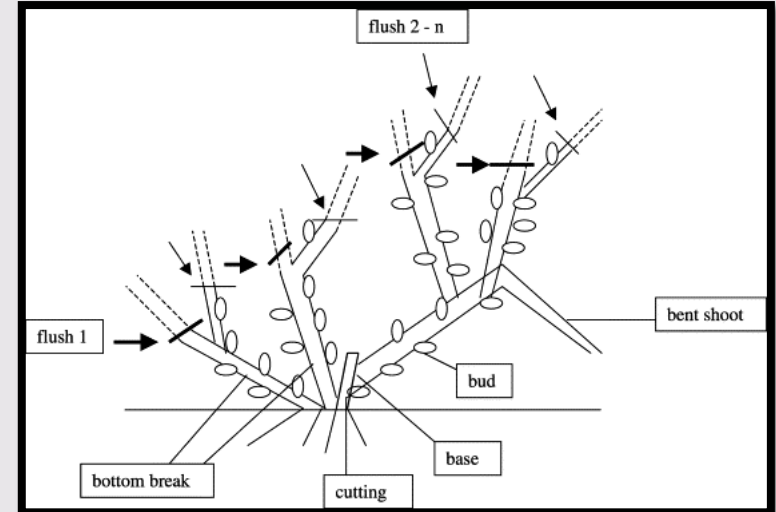
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Plant canopy development

After planting ground shoot will start growing from crown of plant. The week ground shoots should be bent at ground level for forming a basic and strong frame work of plant structure for production throughout their life cycle.

Mother Shoot Bending

Mother shoot bending is the first phase of cultural practice. After one to one and half months of planting, the plant blooms. The first flower is pinched and then two to three eye buds will sprout on the main branch. These branches are bent towards the path. This bending helps development of plant structure with next layer of branching.





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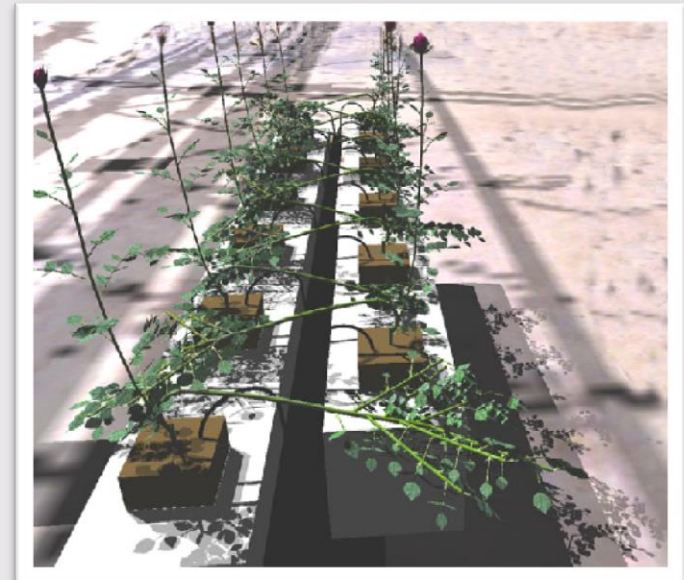
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Bending of secondary shoots

Next important cultural management is bending of secondary shoots. Weak and blind secondary shoots are selected for bending and it is a continuous process and hence carried out throughout the life cycle of the plant. Buds are removed before bending of branches.

Pinching

Removal of unwanted vegetative growth from the axil of leaf below the terminal bud is called pinching. This helps to get good quality flowers and buds and avoids wastage of energy in the development of auxiliary bud if done at right stage and right time. It leads to apical dominance.





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Removal of wild shoot (or root stock)

Wild shoots are the unwanted. Growth of wild shoot or root stock can take place at the union of the root stock and scion. They should be removed at the earliest as these will deplete nutrients and check growth and development of plant. They should not be cut but removed from its union by pressing it with thumb in order to check their further growth.

Pruning

Pruning or under cutting of rose plant is necessary to decrease height of the plant. This is done in the month of June or July. Pruning or under cut is practiced to avoid short stem and weak sprouts. This also helps in maintaining the right canopy structure.

