



Polyhouse Cultivation of Cherry Tomato for Premium Markets

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INTRODUCTION

Cherry tomato is one of the most profitable vegetable crops cultivated under protected structure. The fruits are small, attractive, and rich in vitamin A and C, antioxidants and lycopene. Growing cherry tomato in open fields often results in reduced yield and poor fruit quality due to adverse weather, pests and diseases. Polyhouse cultivation helps overcome these constraints by providing a favourable microclimate for crop growth. With increasing demand from urban consumers and the hospitality sector, cherry tomato cultivation under polyhouse conditions has emerged as a profitable enterprise for progressive farmers.

Advantages of Polyhouse Cultivation

- Protection from extreme weather conditions.
- Better control of temperature and humidity.
- Higher yield compared to open - field cultivation.
- Improved fruit quality and uniformity.
- Reduced incidence of pests and diseases.
- Longer harvesting period.

Climate and Soil Requirements

Cherry tomato performs best under moderate climatic conditions

- Optimum temperature -: 18-28°C
- Relative humidity -: 60-70%
- Soil pH -: 6.0 - 7.0
- Well drained sandy loam or loamy soil is preferred
- Soil should be rich in organic matter and free from soil borne diseases.

Suitable Varieties and Hybrids

Popular cherry tomato hybrids suitable for polyhouse cultivation include: -

- Sakura
- Sweet million
- Cheramy
- Red cherry
- Yellow cherry
- Sungold
- Indam ruby cherry

*Selection of hybrids should be based on market demand, yield potential, and disease resistance.

Nursery raising

Healthy seedlings are essential for successful cultivation.

- Use pot trays with cocopeat as growing media.
- Treat seeds with suitable fungicides or bioagents.
- Maintain adequate moisture during germination
- Seedlings become ready for transplanting on 25-30 days.
- Select healthy and disease – free seedlings.

Land preparation and bed formalition

- Prepare raised beds of 1 meter width.
- Incorporate well – decomposed farmyard manure (20-25 t/ha)
- Install drip irrigation and fertigation systems.
- Cover beds with black silver plastic mulch to reduce weeds and conserve moisture.

Transplanting

- Spacing 45-60 cm between plants and 90-100 cm between rows.
- Transplanting during cooler hours of the day.
- Irrigate immediately after transplanting

Pest and disease management

Major pests

- Plant population under polyhouse generally range from 18000-22000 plants per hectare depends on spacing.

Irrigation and fertigation

Drip irrigation is recommended for efficient water use.

- Uniform moisture supply
- Reduce water wastage.
- Improved nutrient use efficiency.

Fertigation schedule

Nutrients are supplied through water soluble fertilizers.

Major nutrients required: - 1. nitrogen (N) 2. Phosphorous (p) 3. Potassium (k) 4. Calcium 5. Magnesium.

Potassium application should be increased during fruit development to improve fruit quality, sweetness and shelf life.

Training and pruning

Training and pruning are important operations in polyhouse cultivation.

Training :-

- 1) plants are trained on vertical strings tied to overhead wires.
- 2) maintains proper plant architecture.

Pruning :-

- 1) remove side shoots regularly.
- 2) retain single or double stem system.
- 3) remove old and diseased leaves.

Benefits :-

- 1) Better light penetration.
- 2) improved air circulation.
- 3) Higher fruit quality.
- 4) reduced disease incidence.

Pollination management

Although tomato is self-pollinated, pollination inside polyhouses may be inadequate.

Methods :-

- 1) manual shaking of flower clusters.
- 2) use of vibrating devices.
- 3) introduction of pollinators where feasible.

Proper pollination improves fruit set and yield

Whitefly -: causes sap sucking and virus transmission.

Management -: yellow sticky traps and need – based insecticide application.

Thrips -: causes leaf curling and flower damage .

Management -: blue sticky traps. biological and chemical control.

Leaf minor -: produces mines on leaves.

Management-: removal of affected leaves and integrated pest management practices.

Major diseases

Powery mildew -: white powdery growth on leaves.

Maintain ventilation and apply recommended fungicide

Early blight -: dark concentric spots on leaves

Use disease free seedling and timely fungicide sprays.

Fusarium wilt -: causes wilting of plants.

Use resistant varieties and soil sterilization methods.

Integrated pest management should be followed to minimize chemical usage.

Harvesting

- First harvest starts approximately 70-80 days after transplanting.
- Fruit should be harvested at the appropriate maturity stage depending on market requirements
- Harvesting is done at interval of 2-3 days

Yield potential under good management practices

Open field -: 40-60 t/ha

Polyhouse -: 100-150 t/ha

Polyhouse cultivation can produce 2-3 times higher yield than open field cultivation.

Marketing opportunities

Premium markets for cherry tomato includes -:

- Supermarkets
- Hotels
- Restaurants

- Catering services
- Online grocery platforms
- Export markets

Premium – quality fruits fetch significantly higher prices than conventional tomatoes

Economic importance -:

polyhouse –grown cherry tomatoes provide -:

- Higher profitability.
- Better market prices.
- Continuous income through extended harvesting.
- Increased employment opportunities.
- Efficient utilization of protected cultivation infrastructure.

Although the initial investment is high the returns are attractive due to premium market demand.

CONCLUSION

Polyhouse cultivation of cherry tomato is an effective strategy for producing high quality fruits that meet the requirements of premium markets. the controlled environment of a polyhouse enhances productivity, fruit quality, and profitability while reducing losses from adverse weather and pests. With proper management of irrigation, nutrition, training and plant protection cherry tomato cultivation can become a highly profitable venture for farmers and entrepreneurs. the growing demand for fresh, nutritious, and attractive vegetables in urban markets makes cherry tomato an ideal crop for protected cultivation systems.

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