



Hi-Tech Guava Orchard Management for Better Returns

*Narayan Lal Jat and Tikam Das Vaishnav

RNT College of Agriculture, Kapasan, Rajasthan, India

*Corresponding Author's email: narayanjat1201@gmail.com

Guava (*Psidium guajava* L.) is one of the most profitable fruit crops in tropical and subtropical regions. Hi-tech guava orchard management involves the use of improved varieties, high-density planting, drip irrigation, fertigation, canopy management, and integrated pest management to achieve higher productivity and better fruit quality. With proper management, farmers can obtain higher yields and increased profits per unit area.

Site Selection and Soil Requirements

- Select well-drained fertile soil with pH 5.5–7.5.
- Avoid waterlogged areas.
- Ensure availability of irrigation water throughout the year.
- Choose a sunny location for better flowering and fruit development.

Variety Selection

High-yielding and market-preferred varieties

- Allahabad Safeda
- Lucknow-49 (Sardar)
- Lalit
- Arka Kiran
- Taiwan Pink Guava

High-Density Planting System

Traditional spacing: 6 m × 6 m (278 plants/ha)

Hi-tech spacing:

- 3 m × 2 m = 1666 plants/ha
- 2.5 m × 2.5 m = 1600 plants/ha

Quality Planting Material

- Use disease-free grafted or air-layered plants.
- Purchase plants from certified nurseries.
- Plant during monsoon or with assured irrigation.

Drip Irrigation and Fertigation

Benefits

- Saves 40–60% water.
- Improves fertilizer-use efficiency.
- Enhances fruit size and quality.

Fertigation Schedule

Apply nutrients through drip:

- Nitrogen (N)
- Phosphorus (P)

- Potassium (K)
 - Micronutrients such as Zinc and Boron
- Split fertilizer application into multiple doses throughout the growing season.

Canopy Management and Pruning

- Maintain plant height at 2–2.5 m.
- Remove dead, diseased, and crossing branches.
- Regular pruning improves light penetration and fruit quality.
- Rejuvenate old orchards through hard pruning.

Bahar Treatment

For obtaining quality winter crop:

- Withhold irrigation before flowering.
- Perform root exposure and pruning.
- Apply recommended fertilizers after flowering.

Benefits:

- Better fruit quality
- Higher market price
- Reduced pest incidence

Integrated Nutrient Management (INM)

- Apply 20–25 kg FYM per plant annually.
- Use biofertilizers such as Azotobacter and PSB.
- Apply micronutrients based on soil testing.
- Mulching helps conserve moisture and suppress weeds.

Integrated Pest and Disease Management (IPM)

Major Pests

1. Fruit Fly
2. Mealy Bug
3. Stem Borer

Control Measures:

- Orchard sanitation
- Fruit fly traps
- Timely spraying of recommended insecticides
- Removal of infested fruits

Major Diseases

1. Wilt
2. Anthracnose
3. Fruit Rot

Management:

- Use disease-free planting material.
- Ensure proper drainage.
- Apply recommended fungicides when required.

Harvesting and Post-Harvest Management

- Harvest fruits at proper maturity stage.
- Grade fruits according to size and quality.
- Use suitable packaging materials.
- Store fruits under cool conditions to extend shelf life.

Economics and Returns

Under traditional cultivation:

- Yield: 15–20 tonnes/ha

Under hi-tech cultivation:

- Yield: 40–60 tonnes/ha
- Better fruit quality and higher market prices
- Increased net returns by 2–3 times compared to conventional orchards

Conclusion

Hi-tech guava orchard management combines high-density planting, drip irrigation, fertigation, canopy management, and integrated pest management to maximize productivity and profitability. Adoption of these modern practices can significantly increase yield, improve fruit quality, reduce production costs, and provide better economic returns to guava growers.