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Pomegranate Cultivation and Management

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INTRODUCTION

Pomegranate (*Punica granatum* L.) is one of the most important fruit crops in horticulture, known for its high nutritional value and excellent market demand. It is rich in antioxidants, vitamins, and minerals, making it highly beneficial for human health. Pomegranate is well suited to tropical and subtropical climates and can tolerate drought conditions better than many other fruit crops. Due to its high yield, long shelf life, and export potential, pomegranate cultivation has become a profitable venture for farmers.



Climate and Soil Requirement

Pomegranate grows best in hot and dry climates. It requires warm temperatures for fruit development and ripening, while excessive humidity and rainfall during flowering can increase disease incidence.

It can be grown in a wide range of soils, but well-drained loamy soil is ideal. The crop can tolerate slightly alkaline soils but is sensitive to waterlogging, which can damage roots and reduce yield.

Improved Varieties

Some popular and high-yielding varieties include:

- Bhagwa (most popular commercial variety)
- Ganesh
- Arakta
- Mridula
- Ruby

Among these, Bhagwa is widely cultivated due to its attractive fruit color, soft seeds, and high market value.

Planting and Spacing

Planting is usually done during the rainy season or spring. Healthy, disease-free plants should be selected for planting.

Recommended spacing:

- 4 m × 4 m (normal planting)
- 5 m × 3 m (high-density planting)

Pits are filled with soil mixed with farmyard manure before planting.

Irrigation Management

Proper irrigation is essential for good growth and fruit development. Young plants require frequent irrigation, while mature plants need irrigation at longer intervals.



Drip irrigation is the best method, as it:

- Saves water
- Improves fruit quality
- Increases yield

Over-irrigation should be avoided, as it may cause fruit cracking.

Nutrient Management

Balanced fertilization is necessary for healthy plant growth and higher yield. Both organic and inorganic fertilizers should be applied.

Farmyard manure improves soil fertility, while nitrogen, phosphorus, and potassium fertilizers support growth, flowering, and fruit development.

Fertilizers are usually applied in split doses throughout the year.

Training and Pruning

Training and pruning help maintain plant shape and improve productivity.

- Remove weak and diseased branches
- Maintain 3-4 main stems
- Improve sunlight penetration and air circulation

This results in better fruit quality and yield.

Pest and Disease Management

1. Fruit Borer (Deudorix isocrates)

This is the most serious pest of pomegranate. The larvae bore into developing fruits and feed inside, causing fruit damage and premature dropping.

Management:

- Remove and destroy affected fruits regularly.
- Maintain orchard sanitation.
- Use pheromone traps for monitoring and control.
- Spray recommended insecticides such as Spinosad or Emamectin benzoate at proper intervals.

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2. Aphids

Aphids are small sucking insects that feed on plant sap, causing leaf curling, yellowing, and reduced plant growth.

Management:

- Encourage natural predators like ladybird beetles.
- Spray neem oil (3-5 ml per litre of water).
- If infestation is severe, apply recommended insecticides like Imidacloprid.

Common Diseases and Their Management

1. Bacterial Blight

This is the most destructive disease of pomegranate. It causes dark spots on leaves, stems, and fruits, leading to fruit cracking and heavy losses.

Management:

- Use disease-free planting material.
- Remove and destroy infected plant parts.
- Avoid overhead irrigation.
- Spray Copper oxychloride or Streptomycin at recommended doses.

2. Fruit Rot

This disease causes rotting of fruits, especially under high humidity conditions.

Management:

- Maintain proper spacing and pruning for air circulation.
- Remove infected fruits.
- Spray suitable fungicides like Carbendazim or Mancozeb.

Integrated Pest Management (IPM)

Integrated Pest Management combines cultural, biological, and chemical methods to control pests and diseases effectively and safely.

Key IPM practices include:

- Field sanitation
- Use of healthy planting material

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- Regular orchard monitoring
- Use of biological control agents
- Need-based chemical spray

IPM reduces pesticide use, protects the environment, improves fruit quality, and ensures sustainable pomegranate production.

Harvesting and Yield

Pomegranate plants start bearing fruits after 2-3 years of planting. Fruits are harvested when they develop proper size and color.

Average yield:

- 10-15 kg per plant
- 10-15 tons per hectare

Proper management can further increase yield.

Advantages of Pomegranate Cultivation

- High market demand
- Drought tolerant crop
- High income potential
- Suitable for arid and semi-arid regions
- Export potential

CONCLUSION

Pomegranate is a highly profitable and important fruit crop in horticulture. It requires proper management practices such as irrigation, fertilization, pruning, and pest control for better yield and quality. With increasing demand and export potential, pomegranate cultivation offers excellent opportunities for farmers. Adoption of modern cultivation practices like drip irrigation and integrated management ensures sustainable production and higher income.

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