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Secrets to Growing High-Yield Mango Orchard

Miss Jingyasha Meher¹, Priyanka Hugar², Asha³ and *Guddu Kumar⁴

¹SMS (Horticulture), Krishi Vigyan Kendra, Deogarh, Odisha, India

²Ph.D. Student, Department of Fruit Science, College of Horticulture, Bengaluru, India

³Ph.D. (Fruit Science), College of Agriculture, IGKV, Raipur, Chhattisgarh, India

⁴Ph.D. Scholar, Department of Post-Harvest Technology, Faculty of Horticulture, Bidhan

Chandra Krishi Viswavidyalaya, Mohanpur, Nadia, West Bengal, India

*Corresponding Author's email: rajendrasingh6452@gmail.com

Mango, known as the “King of Fruits,” is a symbol of sweetness, prosperity, and heritage in India. But achieving consistently high yields in a mango orchard isn't about luck — it's about knowledge, planning, and precision. With the right combination of varieties, management, and modern techniques, growers can enjoy bountiful harvests and high profits.

Choosing the Right Variety – The First Step to Success

Selecting the right variety is the foundation of a profitable mango orchard. The choice depends on climatic adaptability, fruit quality, yield potential, and market preference. Below are some of the most successful and promising mango varieties for commercial and high-density cultivation across India.

A. Traditional & Popular Varieties (High Market Value)

Variety	Key Features	Major Growing Regions
Alphonso (Hapus)	Premium flavor, rich aroma, export favorite	Maharashtra, Goa, Gujarat
Dashehari	Sweet, fiberless, early mid-season	Uttar Pradesh, Bihar
Langra	Excellent table variety, uniform size	Bihar, U.P., West Bengal
Kesar	Golden flesh, high TSS, pulp industry use	Gujarat, Maharashtra
Banganapalli (Safeda)	Heavy bearing, large fruits, long shelf life	Andhra Pradesh, Telangana
Totapuri	High yield, acid flavor, best for processing	South India
Suvernarekha (Sundari)	Attractive yellow skin, sweet, juicy	Odisha, Andhra Pradesh
Neelum	Late variety, regular bearer, tolerant to stress	Tamil Nadu, Kerala

B. Dwarf & High-Density Planting Varieties: Ideal for modern high-density orchards (HDP) and ultra-high-density planting (UHDP) systems.

Variety	Parentage / Institute	Key Traits
Amrapali	(Dashehari × Neelum) – IARI	Dwarf, regular bearer, good color & taste
Mallika	(Neelum × Dashehari) – IIHR	Semi-dwarf, excellent quality, fiberless
Arka Aruna	IIHR, Bengaluru	Dwarf, red blush fruits, regular yield
Arka Puneet	IIHR, Bengaluru	Deep red skin, high TSS, export quality
Arka Neelkiran	IIHR, Bengaluru	Red skin, disease tolerant, high yield
Arka Udaya	IIHR, Bengaluru	Dwarf, suitable for HDP, uniform fruits
PKM 1	TNAU, Periyakulam	Early bearing, good taste, regular yielder
Ratna	(Neelum × Alphonso)	Semi-dwarf, less spongy tissue, regular bearer
Sindhu	(Ratna × Alphonso) – Konkan	Fiberless, attractive red blush, high pulp recovery

Manjeera	(Neelum × Baneshan) – ANGRAU	Regular bearing, medium fruits, sweet flavor
Vanraj	Anand (Gujarat)	Dwarf, red blush, high market value
Pusa Arunima	IARI, New Delhi	Dwarf, deep red skin, ideal for HDP
Pusa Pratibha	IARI	Regular bearer, orange-yellow fruit, fiberless

C. Export-Oriented & Hybrid Varieties

Variety	Developed By	Highlights
Alphonso Clone Selection (Kesar-type)	NRCC, Vengurla	Uniform ripening, long shelf life
Jardalu	Bihar	Exported to Middle East, rich aroma
Imam Pasand (Himayuddin)	Tamil Nadu	Excellent taste, royal variety
Pairi	Maharashtra	Early variety, high sugar content
Arka Rutuparna	IIHR	Attractive fruits, long shelf life
Tommy Atkins	USA (now in India trials)	Red skin, firm pulp, long storage life
Kent	Introduced Hybrid	Export variety, low fiber, sweet
Keitt	Introduced Hybrid	Large fruit, good for processing & export

D. Regional & Special Purpose Varieties

Variety	Specialty	Region
Mulgoba	Late maturing, good keeping quality	South India
Alampur Baneshan	Smooth skin, high yield	Andhra Pradesh
Chausa	Sweet and juicy, table variety	North India
Fernandin	Regular bearer, good aroma	Western India
Mulgoa	Strong aroma, big size	Tamil Nadu
Kalapadi	Dwarf, excellent keeping quality	Kerala, Karnataka
Pahutan (Philippines)	Excellent pulp recovery	Research/Trials in India

Quick Selection Guide for Growers

Climate	Recommended Varieties
Dry / Arid (Rajasthan, Gujarat)	Kesar, Vanraj, Banganapalli, Arka Aruna
Humid / Coastal (Kerala, Goa)	Neelum, Suvernarekha, Mallika, Sindhu
North Indian Plains (U.P., Bihar)	Langra, Dashehari, Amrapali, Mallika
South India (TN, Karnataka, A.P.)	Neelum, Totapuri, Arka Puneet, PKM 1
Export Purpose	Alphonso, Kesar, Arka Puneet, Sindhu, Mallika

Tip for Growers: Mix early, mid, and late-season varieties in one orchard for continuous fruit availability and better pollination.

Site Selection and Preparation

- **Soil:** Well-drained loamy soil, pH 6.5–7.5. Avoid waterlogged areas.
- **Spacing:** 8 × 8 m for normal planting; 4 × 2 m for high-density planting.
- **Pit Preparation:** 1 × 1 × 1 m pits with 20–25 kg FYM and 1 kg neem cake.
- **Sunlight:** Ensure at least 8 hours of direct sunlight per day.



Efficient Irrigation Management

- **Young plants:** Water every 2–3 days during dry months.
- **Bearing trees:** Irrigate before flowering, during fruit set, and fruit enlargement.
- **Modern practice:** Use **drip irrigation with fertigation** to deliver water and nutrients efficiently.

Nutrient Management for Maximum Yield

Age of Tree	FYM (kg/tree)	N (g)	P ₂ O ₅ (g)	K ₂ O (g)
1–3 years	20–40	100–200	50–100	100–200
4–6 years	50–75	400	200	400
7+ years	100	1000	500	1000

Apply micronutrients like Zinc (0.5%) and Boron (0.2%) during flowering and fruit set.

Pruning and Canopy Management

- Prune dead, diseased, or overcrowded branches after harvest.
- Maintain **open center or modified leader system** for light penetration and air circulation.
- Dwarf hybrids like *Amrapali*, *Mallika*, and *Arka Aruna* respond very well to pruning.



Pest and Disease Control

- Common pests: **Mango Hopper, Mealy Bug, Fruit Fly** – use neem oil, pheromone, and sticky traps.
- Diseases: **Powdery Mildew, Anthracnose** – use copper oxychloride or carbendazim.
- Maintain orchard sanitation and remove infected fruits and leaves.

Flowering and Fruit Set Management

- Apply **Paclobutrazol** (3.2 ml/m canopy diameter) in September for consistent flowering.
- Keep bee-friendly conditions to ensure better pollination.
- Avoid chemical sprays during flowering.



Harvesting and Post-Harvest Handling

- Harvest fruits when skin turns light green to yellow.
- Use **harvesting poles with nets** to avoid bruising.
- Wash, grade, and pack fruits in ventilated boxes.
- For export: **hot water treatment (52°C for 5 min)** to control fruit fly infestation.



Sustainable Orchard Practices

- Use **organic manures and mulching** to conserve moisture.
- Adopt **rainwater harvesting** for long-term sustainability.
- Intercrop with **cowpea, moong, or marigold** for additional income during early orchard years.

Conclusion

Growing a high-yield mango orchard combines science, planning, and patience. Proper variety selection, nutrition, pruning, pest management, and harvesting techniques lead to both high-quality fruits and consistent profit. With sustainable practices and modern techniques, a mango orchard can remain productive and profitable for decades.