



Beyond Arecanut: Profitable Intercropping Ideas for Central Karnataka

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In many villages across Shivamogga, Davangere, Chitradurga, and Tumkur, an arecanut garden is more than just a crop, it is a family's long-term investment. Yet, many farmers walk through rows of arecanut palms and see only empty spaces between them. Those spaces, if managed wisely, can become an additional source of income throughout the year. Take the example of a progressive farmer from the Malnad–Central Karnataka transition belt. Instead of depending only on arecanut, he planted banana during the early years, trained black pepper vines on the palms, and cultivated ginger beneath the canopy. Even when arecanut prices fluctuated, income from the intercrops helped meet household expenses and farm investment needs. This approach is becoming increasingly important as farming faces challenges such as irregular rainfall, rising input costs, and labour shortages. Intercropping is no longer just an option—it is a smart farming strategy.

Why Intercropping Matters

Arecanut is a perennial crop with wide spaces between palms, especially during the initial years. These spaces receive filtered sunlight that can support several shade-loving crops. Instead of leaving the land unused, farmers can grow compatible intercrops to improve productivity and profitability.

The benefits include:

- **Additional income:** Farmers earn returns before arecanut reaches full production and continue earning from complementary crops.
- **Better use of land:** Every square metre contributes to farm income.
- **Improved soil health:** Crop residues and organic matter enhance soil fertility and microbial activity.
- **Reduced weed growth:** Ground-covering intercrops suppress weeds naturally.
- **Risk reduction:** Income comes from multiple crops instead of depending only on arecanut prices.
- **Efficient water use:** With drip irrigation and mulching, the same irrigation system can support multiple crops.

For farmers in the semi-arid and transitional regions of Central Karnataka, where water availability often becomes uncertain after the monsoon, diversified farming offers greater resilience.

Top 5 Intercrops for Arecanut Gardens

1. Banana (Robusta or Grand Naine/G9)

Banana is one of the most profitable intercrops during the early establishment years of arecanut gardens.

Recommended practice

- Plant between arecanut rows while ensuring adequate spacing from young palms.
- Maintain about **2.7 m × 2.7 m spacing** for banana plants (Based on the spacing of arecanut)
- Best planting season: **June–August** with the onset of monsoon or under irrigation.

Income potential

A well-managed banana crop can provide attractive returns within 12–14 months, helping farmers recover establishment costs while waiting for arecanut to reach commercial bearing.

2. Cocoa

Cocoa performs well under partial shade, making it an excellent long-term companion crop.

Recommended practice

- Plant cocoa in alternate rows where sufficient filtered light is available.
- Maintain approximately **2.7 m × 2.7 m spacing** (Based on the spacing of arecanut).
- Requires regular irrigation and organic matter.

Income potential

Although cocoa begins yielding after a few years, it provides an additional high-value harvest and complements the arecanut production system well.

3. Black Pepper (Trained on Arecanut Palms)

Black pepper is often called the "green gold" of mixed plantation systems.

Recommended practice

- Plant one healthy pepper vine at the base of selected arecanut palms.
- Train vines carefully using soft ties during the initial stages.
- Regular pruning improves ventilation and reduces disease incidence.

Income potential

Mature pepper vines can generate significant additional income, especially during years of favourable market prices. Since arecanut palms serve as natural standards, no separate support structures are required.

4. Ginger and Turmeric

These shade-tolerant spices fit well beneath mature arecanut gardens.

Recommended practice

- Plant during **May–June** before monsoon.
- Raised beds with good drainage help avoid rhizome rot.
- Apply sufficient organic manure and mulch to conserve soil moisture.

Income potential

Ginger offers quicker returns, while turmeric provides stable demand from both fresh and processing markets. These crops also make efficient use of the humid microclimate under the canopy.

5. Shade-Tolerant Vegetables

Several vegetables can be successfully cultivated where moderate sunlight reaches the ground.

Suitable options include:

- Cowpea
- Amaranthus
- Colocasia (taro)
- Leafy greens
- Coriander during cooler months

Recommended practice

- Select crops based on local market demand.
- Rotate vegetable crops to reduce pest and disease build-up.

Income potential

Vegetables provide regular cash flow through frequent harvesting and local market sales.

Smart Agronomic Tips for Higher Returns

Maintain Proper Spacing

Avoid overcrowding. Intercrops should never compete excessively with arecanut for sunlight, nutrients, or moisture. Good air circulation also reduces disease problems.

Use Drip Irrigation

Water scarcity is becoming a major concern in parts of Davangere, Chitradurga, and Tumkur. Drip irrigation delivers water directly to the root zone, reduces evaporation losses, and improves water-use efficiency. Separate emitters for intercrops help maintain uniform moisture.

Follow Balanced Nutrient Management

Each crop has different nutrient needs. A practical approach is to:

- Apply well-decomposed farmyard manure every year.
- Split fertilizer applications based on crop requirements.
- Use soil testing to guide fertilizer doses.
- Incorporate micronutrients if deficiencies are identified.

Avoid applying fertilizers too close to the arecanut stem. Nutrients should be placed within the active root zone.

Mulching Pays

Dry leaves, coconut fronds, and crop residues conserve moisture, suppress weeds, and gradually improve soil organic carbon.

Monitor pests and diseases regularly

Mixed cropping systems require regular observation. Early detection of pest or disease problems prevents major losses while reducing unnecessary pesticide use. Research conducted under plantation crop improvement programmes, including work supported through the **All India Coordinated Research Project (AICRP)** and recommendations from regional universities continues to emphasize integrated crop management, balanced nutrition, and efficient water use for sustainable plantation farming.

Government Support Farmers Can Use

Several government programmes can reduce production risk and improve profitability.

Farmers should explore:

- **Pradhan Mantri Fasal Bima Yojana (PMFBY):** Crop insurance against weather-related losses and natural calamities for notified crops.
- **Department of Horticulture, Karnataka:** Assistance for drip irrigation, plantation development, mulching, and horticultural infrastructure under various state and central schemes.
- **Krishi Vigyan Kendras (KVKs):** Training programmes, field demonstrations, soil testing, pest management guidance, and improved production technologies.
- **Farmer Producer Organizations (FPOs):** Collective marketing and better price realization for horticultural produce.

Farmers can also access updated technical recommendations through local horticulture officers and university extension programmes.

References

1. Central Plantation Crops Research Institute (CPCRI), 2025, *Good Agricultural Practices in Arecanut Cultivation*. ICAR-CPCRI, Kasaragod, Kerala. Available from: ICAR-CPCRI Publications.
2. Central Plantation Crops Research Institute (CPCRI), *Arecanut Cultivation – Package of Practices and Seasonal Operations*. ICAR-CPCRI, Vittal, Karnataka. Available from: ICAR-CPCRI Arecanut Resources.
3. Department of Horticulture, Government of Karnataka, *Package of Practices for Horticultural Crops*. Bengaluru, Karnataka.
4. Keladi Shivappa Nayaka University of Agricultural and Horticultural Sciences (KSNUAHS), Shivamogga, Agricultural and Horticultural Research Stations (AHRS),

- Thirthahalli and Honnavile - Research recommendations on arecanut, black pepper, cocoa, ginger and integrated cropping systems. Available from: KSNUAHS Research Stations.
5. Premalatha, K., Soundarya, H.L., Sharma, K., and Nayak, M.S., 2024, Cultivating Arecanut in India: Challenges, Opportunities and Sustainable Practices. *Madras Agricultural Journal*, 111(10–12): 58–66.
 6. Bhat, R. and Sujatha, S. 2016. Arecanut-Based Cropping System, *Indian Journal of Arecanut, Spices and Medicinal Plants*, 18(4): 35–41.
 7. ICAR–AICRP on Palms, Technical recommendations on arecanut production technologies, intercropping systems, nutrient management and plantation crop improvement. ICAR-CPCRI, Kasaragod.