



## Cinderella Agroforestry: Reviving Forgotten Trees

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### Abstract

Agroforestry is a sustainable land-use system that integrates trees, crops, and livestock on the same piece of land. This practice enhances ecological resilience, improves soil health, and diversifies farmer incomes. In India, agroforestry has deep traditional roots, but the advent of the Green Revolution (1965–1968) shifted focus toward monoculture and high-yield crops, sidelining indigenous species and traditional farming systems (Nair, 2017). Out of this neglect emerged the concept of Cinderella Agroforestry, highlighting species that, much like Cinderella in the fairytale, were overlooked despite their immense potential.

### Introduction: The Cinderella Species

*Cinderella species* are indigenous plants with significant nutritional, medicinal, and industrial value but historically ignored by researchers and markets (Leakey & Newton, 1994). Examples include *Moringa oleifera* (drumstick), *Tamarindus indica* (tamarind), *Aegle marmelos* (bael), *Emblica officinalis* (amla), and *Azadirachta indica* (neem). These species act as nutritional powerhouses, rich in vitamins and minerals, and play a vital role in biodiversity

conservation, cultural heritage preservation, and rural food security (Okafor & Leakey, 1990).



**Fig 1.** Prominent Cinderella Agroforestry System

### History

The idea of integrating neglected species into farming systems gained traction in the late 20th century. In the 1980s, Okafor and Leakey emphasized the importance of non-timber forest products (NTFPs) for rural livelihoods. The World Agroforestry Centre (ICRAF) initiated domestication programs in the 1990s to improve genetic quality and promote cultivation of these species (ICRAF, 1995). Leakey and Newton (1994) popularized the term *Cinderella species*, while Nair (2017) expanded the concept into a comprehensive agroforestry system. International organizations such as FAO and Bioversity International have since promoted

Cinderella Agroforestry as a solution to deforestation, biodiversity loss, and climate change.

### Challenges in Adoption

Despite its promise, Cinderella Agroforestry faces several barriers:

- Knowledge gaps: Farmers often lack training in species selection, planting techniques, and spacing.
- Economic constraints: High initial investment and delayed returns discourage small and marginal farmers.
- Infrastructure limitations: Lack of processing facilities and poor transport networks hinder commercialization.
- Policy neglect: Modern agricultural policies historically favored monocultures, leading to local extinction of unique species.

### Solutions and Importance

Research institutions and organizations are addressing these challenges through:

- Farmer training programs: Conducted by institutions like the Indian Council of Forestry

Research and Education (ICFRE).

- Sustainable models: Developed by ICRAF to integrate neglected species into farming systems.
- Policy support: India's National Agroforestry Policy (2014) promotes tree-based farming systems, encouraging inclusion of indigenous species (Government of India, 2014).
- Global initiatives: FAO and other organizations advocate agroforestry for food security and climate resilience.

By reviving Cinderella species, agroforestry reduces economic risks for farmers, addresses malnutrition, and strengthens biodiversity.

### Global Practices

Agroforestry is now practiced worldwide:

- China: Large-scale shelterbelts and silvopastoral systems.
- Indonesia: Home gardens and multistorey systems with coconut, coffee, and spices.
- Kenya: Smallholder silvopastoral systems, making it a global leader in agroforestry.
- Other countries: France, USA, Nigeria,

**Table 1:** Efforts are being made for the introduction of tree species like :

S. No.	Common name	Scientific name	Primary use
1.	Drumstick	<i>Moringa oleifera</i>	Highly nutritious food, water purification, medicinal oil extraction.
2.	Tamarind	<i>Tamarindus indica</i>	Culinary use, Timber and traditional medicine.
3.	Bel	<i>Aegle marmelos</i>	Dietary use and religious significance.
4.	Amla	<i>Emblica officinalis</i>	Rich source of vitamin C, Ayurvedic medicine and Food preservatives.
5.	Cashew	<i>Anacardium occidentale</i>	Edible nuts, juices and CNSL (Cashew Nuts Shell Liquid) for industrial usage.

**Table 2:** Examples of Cinderella species around the world

S. No.	Species	Scientific name	Common region	Primary use
1.	Baobab	<i>Adansonia digitata</i>	Africa	Vitamin rich fruit pulp and leaves.
2.	Shea nut	<i>Vitellaria paradoxa</i>	West Africa	Fat for cosmetics and food.
3.	Irvingia	<i>Irvingia gabonensis</i>	Central Africa	Bush mango for thickening soups.
4.	Peach palm	<i>Bactris gasipaes</i>	Latin America	Nutritious fruit and heart of palm.

- Philippines, Brazil, and Mexico have adopted agroforestry for climate change mitigation and livelihood improvement.

### Conclusion

Cinderella Agroforestry represents a revival of traditional farming practices that were once ignored but now recognized as vital for sustainable development. By integrating neglected species into modern systems, this approach offers solutions to biodiversity loss, soil degradation, and rural poverty. Just like Cinderella's rise from obscurity, these species have the potential to become central to resilient and sustainable agroforestry systems worldwide.

### References

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