



Litchi-Based Diversified Fruit Production Models and Participatory Genetic Resource Management in Nawada and Jamui Districts of Bihar

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1. Introduction to project:

- **Project title:** Litchi-Based Diversified Fruit Production Models & PGR Management
 - Lead: ICAR–NRC on Litchi
 - Partner: PRADAN
- **Target Area:** Nawada & Jamui (Aspirational districts of Bihar)
- **Target Groups:** Small and marginal SC/ST households
- **Problem Identification**
 - Limited Diversification
 - Untapped Potential of Litchi
 - Underutilized Local Fruits
 - Limited Quality Planting Material
 - Weak Postharvest Processing and Value Addition
- **Rationale**
 - Nutrition-sensitive, litchi-integrated fruit-based farming model addressing income and nutrition
 - Litchi as an income and nutrition-enhancing component within diversified orchard systems
 - Promotes on-farm conservation and recognition of farmers' varieties of bael, jackfruit, and pumello through participatory genetic resource management.
 - Strengthens climate resilience, women's empowerment, and local entrepreneurship.
- **Evidence / Experience**
 - NRC–Litchi pilots show success of litchi integration for income + nutrition
 - PRADAN women's nurseries demonstrate community ownership
 - Local farmer selections of bael/pummelo show strong promise

2. Project Objectives:

1. To improve access to fruits for SC/ST households through diversified fruit systems
2. To promote environmentally sustainable, low-input fruit cultivation
3. To establish community-driven nurseries, orchards, homestead gardens, and nutrition gardens.
4. To strengthen women and youth as orchard caretakers, nursery managers, and PGR champions.
5. To identify, register, and popularize local farmers' varieties of bael, jackfruit, and pummelo

3. Methodology and implementation approach(1):

• **Community Targeting**

- SC/ST households
- SHGs & FPOs
- Anganwadi clusters
- Tribal villages in Jamui belt

• **Land-Use Models**

- Litchi-integrated homestead orchards
- Community orchards (common land)
- School & Anganwadi nutrition gardens
- Mixed fruit agroforestry blocks
- Revival of traditional fruit patches / sacred groves

• **Nursery & Plant Material Strategy**

- Community nurseries in Nawada & Jamui
- Propagation methods: grafting, layering, budding
- Localized mother blocks for bael, jackfruit, pummelo

3. Methodology and implementation approach(2):

- **Agroecological Cultivation Practices**
 - Soil health: compost, mulch, bio-inputs
 - Water conservation: ring basins, micro-irrigation
 - Intercropping: legumes, vegetables
 - Biological pest management: neem sprays, pheromone traps
- **Training, Extension & FFS**
 - 6 structured training modules
 - Farmer Field Schools for hands-on learning
 - Nutrition education sessions with SHGs

Project Timeline		
Year / Quarter	Major Activities	Expected Outputs
Year 1 (Q1–Q4)	Site & beneficiary selection, baseline survey, establishment of 2 nurseries, first batch of planting, first training	2 nurseries functional, 150 households start diversification
Year 2 (Q1–Q4)	Expansion to remaining households, mid-term evaluation, varietal identification, exposure visits	300 households covered, 4–5 farmers' varieties identified
Year 3 (Q1–Q4)	Establishment of 2 processing units, registration of farmers' varieties, end-line survey, dissemination	Data collected, varieties registered, 2 units operational

6. Social and nutrition impact pathway – Project outcomes/Impact:

- 300 households growing fruits annually
- Year-round availability → increase in fruit intake
- Decreased household expenditure on fruits
- Women and youth as nursery managers, orchard caretakers
- Linkage to Anganwadi, Mid-day Meal, ICDS nutrition gardens
- Improved household dietary diversity scores

Slide 6. Environmental and climate advantages



- Soil health restored through perennial root systems
- Enhanced biodiversity via multi-species orchards
- Water-use efficiency through mulching & micro-irrigation
- Increased resilience against drought & heat stress
- Climate mitigation through higher biomass & carbon sequestration
- Natural pest management reduces chemical load

7. Scaling, sustainability and cost efficiency:

- **Sustainability Mechanisms**

- SHGs & FPOs manage nurseries and orchards
- Youth trained as orchard technicians
- Revenue streams: sapling sale + fruit sale + processing

- **Scaling Potential**

- Replicable in adjoining blocks of Nawada, Jamui & Muzaffarpur belt
- Farmer-to-farmer diffusion via exposure visits

- **Cost Efficiency & Convergence**

- MIDH for planting subsidies
- MGNREGS for pit digging, land prep, water harvesting
- ICDS for nutrition garden integration
- NRLM for SHG enterprise strengthening

8. Budget summary and risk and mitigation strategy:

A. NRC–Litchi (₹ 27.60 lakh)

Component	Year 1	Year 2	Year 3	Total (₹ Lakh)
Young Professional-I	3.00	3.00	3.00	9.00
Community Nurseries (2 units)	2.20	1.50	1.00	4.70
Household Diversification Inputs	1.80	1.00	0.80	3.60
Training & Exposure Programs	1.20	1.00	1.00	3.20
Processing Unit Establishment	1.80	1.00	—	2.80
Participatory PGR Management	1.20	0.90	0.80	2.90
Documentation & Reporting	0.50	0.50	0.40	1.40
Total ICAR-NRC on Litchi	11.90	8.90	7.80	27.60

PRADAN (₹ 18.00 lakh)

Component	Year 1	Year 2	Year 3	Total (₹ Lakh)
Young Professional-I	3.00	3.00	3.00	9.00
Community Mobilization & Facilitation	1.20	1.20	1.00	3.40
Mobility, Travel & Field Support	0.70	0.60	0.60	1.90
IEC & Nutrition Literacy Events	0.60	0.60	0.60	1.80
Contingency & Coordination	0.60	0.60	0.70	1.90
Total PRADAN	6.10	6.00	5.90	18.00

Risk	Mitigation
Seedling mortality	Use of hardened plants, mulching, watering schedules
Grazing damage	Tree guards, community protection committees
Drought	Micro-irrigation, moisture conservation pits
Low community ownership	SHG/FPO-based management & revenue-sharing
Pest/disease outbreaks	Biological inputs, farmer field schools

Total: ₹45.60 lakh



Thanks

