



Title of the project

Innovative and Community-Based Approaches for Fruit Tree Cultivation to Enhance Nutrition and Livelihoods in Limited Land Households of Prayagraj (UP)

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Introduction to Project



- **Lead Organization:** e-PAHEL
- **Project Area:** Rural and peri-urban regions of Prayagraj (Bhagwatpur & Pratappur blocks), Uttar Pradesh.
- **Problem:** Landless and smallholder families **cannot afford or regularly access fruits**, leading to low micronutrient intake.
- **Intervention:** Promote fruit planting in home spaces—backyards, boundaries, and community areas.
- **Identified Gaps:**
 - Limited availability of quality fruit saplings/ grafts
 - Low awareness and poor horticulture knowledge
 - Weak market linkages and limited value-addition skills
- **Justification:** Homestead fruit trees improve dietary diversity and offer a low-cost income supplement.
- **Selected Species:** Guava, Lemon, Mango, Papaya, Amla, Banana, Ber, Bael, Jamun, Karonda
(year-round fruit availability, nutritional value, local adaptability, and community preference)

Project Objectives

- To design/test community-based, space-efficient fruit cultivation for low-income rural & peri-urban households with little/no cultivable land.
- To Improve food security, nutrition, and livelihoods of SHGs/FPOs members through home- level fruit growing.
- To set up Phal Vatika (Small-space orchards) for fruit production on year –round, low-cost, sustainable practices—pitcher irrigation, composting, and biofertilizers—for establishment and upkeep for SHG/FPO members
- To engage FPOs & SHGs for community nursery management, planting drives, and fruit-based microenterprises
- To improve household access to micronutrient-rich fruits.



Methodology and implementation approach



- Build on **CFL Phase I** (2022 baseline – 2,500 plants, 204 households).
- Scale to **1,000 households** through FPOs/SHGs. (4–6 plants each)
- Co-design SOPs for **fruit species mix**, spacing, irrigation & organic care.
- **Trial method variants**: Pit prep, spacing, graft type, pruning, low-cost protection and irrigation.
- **Monitor quarterly** for survival, growth & yield; biannual household surveys on intake & market substitution.
- **Establish model nursery** and deliver capacity-building trainings.
- **Evaluate through quantitative indicators** + community feedback.
- **Document through field guides**, troubleshooting sheets, videos & policy briefs.

Social and nutrition impact pathway – Project outcomes/Impact



Fruit Production: 1000 families involved in fruit production

Nutrition Goal: Home surroundings to increase access to nutrient-rich fruits

Community Ownership: Increased participation in stewardship and maintenance.

Scalable Model: Documented, replicable Phal Vatika framework for other regions

Improved food security and dietary diversity for low-income families.

Empowered women and youth through active roles in nurseries, phal vatika , and value addition.

Strengthened SHGs and FPOs as local hubs for fruit cultivation and enterprise development.

Environmental and climate advantages



Cleaner Air: Trees absorb pollutants like dust and NO_x, releasing oxygen for healthier rural and urban environments.

Moderated Temperatures: Fruit planting creates shade, reduces heat, and evens out day/night temperatures, supporting cooler, more humid microclimates.

Climate Action: Fruit trees store carbon and increase landscape resilience against climate change.

Stronger Soils & Water: Roots prevent erosion, improve rainwater absorption, and methods like pitcher irrigation conserve water.

Biodiversity: Diverse, native fruit trees provide homes and food for pollinators, birds, and beneficial insects.

Circular Economy: Compost and biofertilizers recycle household waste, reducing chemical use and closing organic loops.

- e-PAHEL formed (with support of NABARD) 4 FPOs and 100 SHG/JLG groups, benefiting 5,561 people.
- e-PAHEL represent in SHG Monitoring Committee under District NRLM.
- MoUs to be signed with two FPCs for fruit plants, nursery, and Phal Vatika management.
- Beneficiaries to be selected from existing FPOs/SHGs for accountability and sustainability.
- FPOs to lead upkeep, input supply, and marketing post-project.
- **CFL Phase I successful**; Phase II to continue FPO-based, cost-effective implementation in community house holds.
- Strong SHG–FPO support ensures ownership, sustainability, and scalability.

Budget summary and risk and mitigation strategy



	Component	INR	USD
1	Household & Community Plantations (Plantation at 1,000 households (4–6 plants each); materials and organic inputs)	₹4,00,000	\$4,540
2	Fruit Species & Method Trials (Comparative trials for 10 fruit species and irrigation/maintenance techniques)	₹2,50,000	\$2,840
3	Community Nursery & Capacity Building (Establish 1 nursery; conduct training for SHG/FPO members)	₹2,50,000	\$2,840
4	Nutrition Awareness & Women Entrepreneurship (50 Phal Vatika , fruit processing and marketing; nutrition education sessions.)	₹2,00,000	\$2,270
5	Monitoring, Research & Documentation (Data collection, analysis, manual preparation, dissemination workshops.)	₹2,00,000	\$2,270
6	Project Coordination & Logistics (Field support, local travel, reporting, and administrative expenses.)	₹2,00,000	\$2,270
	Total	₹15,00,000	\$17,025

Community-Led fruit Plantation Initiative in Prayagraj: First Phase Achievements Without Financial Support



- Community-Led fruit Plantation Initiative in Prayagraj undertaken in First Phase without Financial Support
- CFL India, under the Alliance of Bioversity International and CIAT Asia (India) provided grafts
- 2,500 grafted plants (precocious and dwarf varieties) planted during August 2022.
- Plantation carried out in Bhagwatpur, Kaurihar, Mauaima, and Phoolpur blocks, Prayagraj.
- 204 households participated in the plantation activity.
- Trained in grafting and **community nursery** established



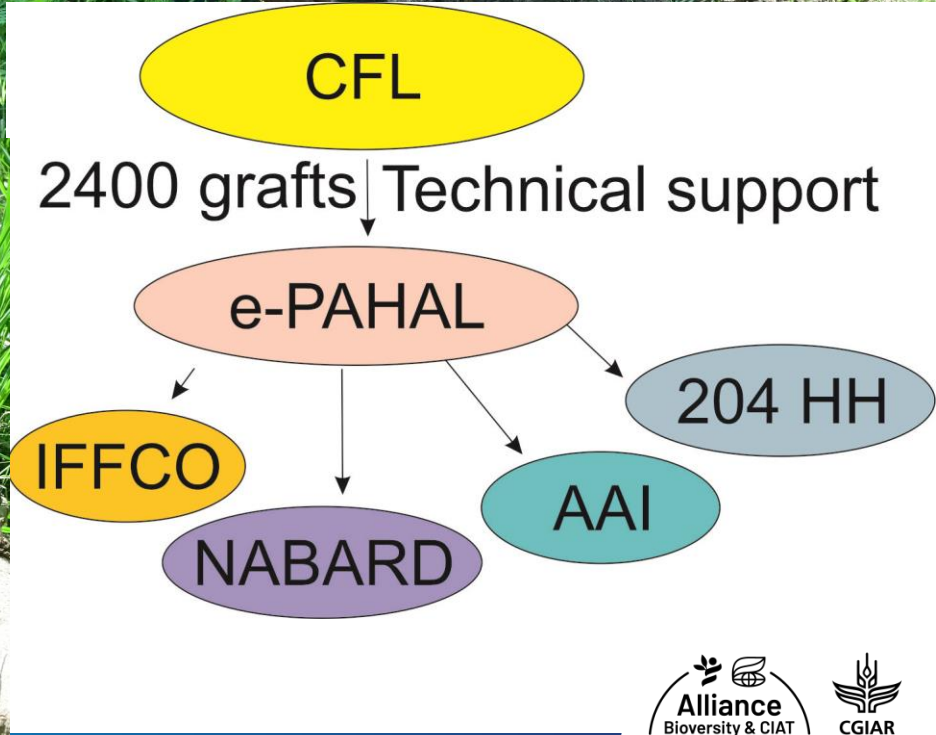
First Phase plants in fruiting with CFL support



Technical support from CFL



Grafting and Community Nursery



e-PAHEL Phase 1 Evaluation: Key Outcomes



- **Over 50 households** successfully saved and established plants.
- **More than 800 plants** are currently alive; **over 95%** are fruiting.
- **High yield:** 40–50 kg per plant (3rd year).

- **Fruit characteristics:**

- Superior taste compared to Safeda variety.
- Average fruit weight: 200–300 grams.
- Round, smooth, and clean fruit shape.



- **Early fruiting:** Begins in the first year, with excellent production by year two.

- **Community impact:**

- Fruit is highly popular among children; yield estimation is challenging due to high fruit consumption.
- Farmers are extremely satisfied with both yield and quality, and are encouraging wider adoption of this variety.

Evaluation Team



e-PAHEL will Develop Low-Cost, Effective Solutions on Assessed Challenges in Plantation Activities



- Training and pruning, spacing, soil preparation, and plant care was lacking and limited plant growth and productivity.
- Awareness and access to plant protection measures were low, which increased vulnerability to disease and pests.
- Drainage was poor, causing water stagnation and plant stress.
- Grazing by animals damaged young plants and reduced plantation success.
- Financial resources were insufficient and mobilizing manpower was difficult, which affected timely plantation and maintenance activities.



Motivation and Positive Outcomes of first phase



- Fruit production started within 2 years, demonstrating early success and quick returns.
- The plants produced excellent quality fruits, especially on plants, enhancing productivity and appeal.
- Community Women developed creative and effective low-cost methods to protect young plants from animals.
- Many participating households shared fruits with each other, fostering community bonding and mutual benefit.
- The success of guava grafting inspired plantation of other food plants such as papaya, Karoda, Bael, Aonla, Mango and Jamun, diversifying the house hold fruit-ecosystem.
- Following the first phase, stakeholders actively demanded more grafted plants, which **e-PAHEL supplied from its own funds, showing sustained commitment and trust.**





Thanks

