

Title of the project (project code):	Development and assessment of self-sustaining poultry-fish-horti based integrated farming (NRMAMGIFRISIL202400300019)
Institute-funded/externally funded	Institute-funded
Project time: Period of development/evaluation/validation	01.04.2024 to 31.03.2027
Developers (Lead and Associates)	Lead: - PI: Dr. Geeta (Up to July 2025) - PI: Dr. A. K. Jadhav, Scientist (Fruit Science) (from August 2025) Associate: Dr. A. K. Jadhav, Scientist (Fruit Science), (Up to July 2025) Dr. Ravi Kumar, Scientist (Fisheries Resource Management) Mr. Rakesh N., Scientist (Agricultural Economics) (Up to August 2025) Dr. Lamella Ojha, Scientist (Animal Nutrition) w.e.f. April 2026
Objective of the project	1. To study constraints and potential opportunities of poultry farming 2. To develop a self-sustaining Poltry-Fish-Horti based model for farmers 3. To assess the economic viability of developed IFS model
Treatment details	A. Poultry only: Control B. Farming system model 1: Poultry-Fish-Horti C. Farming system model 2: Poultry-Fish-Horti-Cereal crops

Summary of the project (Bullet point)	• Conduct a comprehensive survey of 500 poultry farmers across 20 blocks in four districts of Bihar (East Champaran, West Champaran, Sheohar, and Gopalganj) to identify existing practices, constraints, and opportunities in poultry farming. • Evaluate and compare three production systems: Poultry only (Control), Poultry + Fish + Horticulture (IFS Model 1), and Poultry + Fish + Horticulture + Cereal Crops (IFS Model 2). • Integrate poultry with fish farming, horticultural crops (papaya, banana, pigeon pea), and cereal crops (paddy and maize) for efficient resource utilization. • Assess poultry growth performance, feed efficiency, egg production, fish yield, and crop productivity under different IFS models. • Identify the most profitable, resource-efficient, and sustainable poultry-based Integrated Farming System suitable for Bihar conditions.
Output of the project: Yield/productivity gain/ Saving of water, labour, time, and energy/ increase in water use efficiency	• Generated a total net income of ₹95,664 per acre through integrated enterprises. • Produced 2,368 poultry eggs and achieved average poultry body weight of 1.58 kg. • Goat body weight increased from 9.22–9.83 kg to 14.40 kg during the study period. • Produced 3,100 kg+ organic manure/compost through goat and poultry waste recycling. • Fulfilled approximately 30–40% of green fodder and 30% of dry fodder requirements from on-farm resources, reducing feed costs. • Improved soil organic carbon from 0.25–0.61% to as high as 0.72% through nutrient recycling. • Enhanced land-use efficiency by utilizing understory orchard space for intercrops and fodder production. • Reduced dependence on external inputs through internal recycling of nutrients and fodder resources. • Increased system productivity, farm diversification, and resilience against climatic and market risks in flood-prone areas.

Cost effectiveness, including B:C ratio	• The Poultry–Fish–Horti based IFS model proved to be cost-effective and economically viable through diversification of enterprises and efficient resource recycling. • Utilization of poultry waste as compost and integration of horticultural crops reduced external input costs and improved overall profitability. • The system generated an estimated income of ₹72,383 per 4000 m², demonstrating higher economic returns than conventional monocropping systems. • Higher B:C ratio and net returns are expected from integrated enterprises due to multiple income sources, improved resource-use efficiency, and reduced production costs.
Validation technology followed (within the Institute, collaborators, multilocation/multi-site testing at farmers' fields)	NA
Proposed stakeholders	Farmers
Publications/photos/video clipping, if any	NA
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