Towards Viksit Bharat@2047
Technological Innovations and Policy Options for Eastern Region

भाकृअनुप
ICAR

ICAR Research Complex for Eastern Region
ICAR Parisar, P.O. Bihar Veterinary College
Patna-800 014, Bihar

ISBN -978-81-954348-4-8

Towards Viksit Bharat@2047: Technological Innovations and Policy Options for Eastern Region

Editors: Abhay Kumar, Anup Das, PC Chandran, SS Mali, DK Singh, P Bhavana, Kumari Shubha, Arti kumari and Sarfaraj Ahmad

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Year of Publication: February, 2025

Citation:
Abhay Kumar, Anup Das, PC Chandran, SS Mali, DK Singh, P Bhavana, Kumari Shubha, Arti kumari and Sarfaraj Ahmad (2024). Towards Viksit Bharat@2047: Technological Innovations and Policy Options for Eastern Region. ICAR-Research Complex for Eastern Region, Patna, India. pp-195. ISBN -978-81-954348-4-8

Published by:
The Director,
ICAR-Research Complex for Eastern Region
ICAR Parisar, Patna- 800014, Bihar, India
Ph: +91-0612-2223962, FAX: +91-0612-2223956
E-mail: director.icar-rcer@icar.gov.in
Website: www.icarrcer.icar.gov.in

Printed at:
VIRTUE ENTERPRISES, Patna, Call : 9304410331, 9383836044

CONTENT

Introduction 1

Chapter-1: Technologies

1. Crop Production and Protection

1. Sustainable Intensification of Rice-Fallow System of Eastern India 5
2. Sustainable Intensification of Rice-Wheat Cropping System with Summer Green-gram using Resource Technologies in Eastern India 7
3. Improved Agro-techniques for Enhancing the Productivity of Millets in Eastern India 9
4. Innovative Millet-Based Climate Resilient Cropping System for Eastern India 11
5. Interspecific Grafting in Solanaceous Vegetables for Bacterial Wilt Management 13
6. Package of Practices for Upland Field Water Spinach 15
7. Rice-Legume System for Enhancing Productivity of Rainfed Uplands 17
8. Rejuvenation of Unproductive Mango Plants 19
9. Transforming Rice Straw into Eco-Friendly Growing Medium for Microgreens 21
10. Eco-Friendly Plantable Seedling Pot or Decorative Pot from Agricultural Residue 23
11. Conceptual Model for Integrated Organic Farming in an Acre farm plot 24
12. Air pollution Tolerance Index and Anticipated performance Index in Trees and Crops Across the Eastern Gangetic Plains India 26
13. Selacting Wheat Cultivars for Heat and Drought Stress Adaptation in the Middle Gangetic Plains 28
14. Optimizing soil c under different cover crops and irrigation systems 30

2. Farming System and Land Use Models

1. Integrated Farming Systems for Different Ecologies of Eastern India 33
2. Multitier cropping system for Rainfed Uplands of Eastern India 35
3. Carbon stock quantification models for important fruit trees of Eastern India 37
4. Climate Resilient Agriculture Practice in Rice- Fallow Ecosystems of East India Plateau 39
5. Agroforestry Models for Rehabilitation of Coal mine affected Areas in Eastern Plateau & Hill Region 41

3. Soil and Water Conservation Measures

1. Modified drip fertigated mulched Planting System for commercial Cultivation of Vegetable in East India Plateau 44
2. Modified Drip Fertigation Technology for Vegetable Production in Eastern India 46
3. *Tephrosia* Biomass Mulching Technology for Improving Soil Health and Productivity of Fruit Orchard 48
4. Low-Cost Non-Weighing Lysimeter for Assessing Nutrient Leaching Loss 50
5. Fertilizer recommendation in mango using leaf nutrient standard 52
6. Doba Technology of Water Harvesting for Orchard Establishment in Uplands 54
7. Subsurface drip fertigation in vegetable crops 56
8. Drum Kit System for Drip Irrigation 58
9. Modified Non-weighing Paddy Lysimeter 60
10. Prioritized map for identifying drought susceptible zones in Sakri basin 62
11. Model Framework for Water Harvesting Planning using multivariate techniques 64
12. Mapping Flood Prone Areas of Bihar based on Frequency 66

4. Livestock & Fish Production and Protection

1. Serological Diagnosis (Indirect ELISA) of *Theileria annulata* using Recombinant spm² antigen 69
2. Identification of CCL8 and CXCL10 as Early Pregnancy Biomarker in Buffaloes 71
3. Spent Mahua Flower as Growth Promoting Pig Diet 73
4. Low-Cost Feed Formulation for T&D Pig 75
5. Sustainable Poultry Feed Formulation for Desi Chicken 77
6. Breeding, rearing and juvenile seed production of Magur fish (*Clarias magur*) 79
7. Optimization of Integrated Fish Farming Systems for Livelihood Improvement of Small and Marginal farmers of Eastern Region 81
8. Formulation of vitamin-mineral enriched diet for quality seed Production and survival of Rohu (*Labeo rohita)* 83
9. Grass Carp Cultivation Using Seasonal Forage and Aquatic Crops 85
10. Mitochondrial genome maps of duck germplasm inhabiting Eastern Region of India 87
11. HSP70 as marker for heat stress in *Murrah* buffalo 89
12. Effect of glucosamine supplementation on egg laying Performance of chicken 91
13. Identification of novel SNP marker within the PROP1 gene associated with growth characteristics in goat 93
14. Genetic effects of STAT3 gene polymorphism on body Size traits in Assam Hill goats 95

5. Farm Mechanization and Post-Harvest

1. Design and Development of Solar Operated hold-on type paddy thresher 98
2. Solar Irrigation Pump Sizing Tool 100

3. Custom Hiring Centre (CHC) for promotion of Climate Resilient Agriculture 102
4. Over the Plant (OTP) Manual Weeder for Row Crops 104
5. Manual Makhana Seed Grader 106
6. Peripatetic fish vending cart 108
7. Farm Machinery Hiring Calculator: a web Based tool 110
8. Solar Cabinet Dryer for Leafy Vegetables 112
9. Hybrid Solar Light-Pheromone Insect Trap 114
10. Mixed Para-Pheromone Fruit Fly Trap for Horticultural Crops 116

6. Socio-economic, Extension & Policy Measures

1. Climate Resilient Model Villages Developed at Gaya and Buxar districts of Bihar 119
2. Model for structural and functional analysis of Makhana value chain 121
3. Strengthening Export Potential of Farmer Producer Organizations (FPO) through One District One Product (ODOP): A Conceptual Model 123
4. Seed based technology delivery model through Farmers Producer Organization (FPO) 125
5. Flood Prone Area Identified as Fruit Hub in Bihar: A Policy Framework 127
6. Nutrigarden Model Addressing Anemia and Hypovitaminosis Challenges of Eastern India 129
7. Policy Measures for Tenant farmers of Bihar 131
8. Socioeconomic status scale for farmers of Bihar and Jharkhand 133
9. Participatory Research Application for Year-Round Income and Agricultural Sustainability (PRAYAS): A process model for empowering weaker sections 135
10. Process Model for Developing Zero Hunger & Zero Technology Gap Village 139
11. Conceptual Model for Evaluation of Carbon Credit Projects 141
12. Forecasting Kharif Rice Production and Rainfall Assessment in Bihar : ARIMAX and Spatial Interpolation Models for Food Security in Easter India 143
13. Model-Based Resource Mapping and strategies for Rice Cultivars in Food Prone Ecosystems 145

Chapter-2: Climate Resilient Rice varieties 148-158

Chapter-3: Improved varieties of Vegetables 160-186

Chapter-4: High Yielding varieties of Fruits 188-190

Chapter-5: Other Improved varieties (Chickpea, Makhana & Faba bean) 192-195

Design and Development of Solar Operated Hold-on Type Paddy Thresher

Period of development: 2018 - 2022

Developers:

SS Mali, JS Choudhary, PK Sundaram

Background:

Traditional paddy threshing methods, including manual beating and liquid fuel-based threshers, are labour-intensive, time-consuming, and environmentally unsustainable. The increasing cost and scarcity of fossil fuels further highlight the need for energy-efficient, eco-friendly alternatives in smallholder rice farming.

Description of the technology:

The developed solar operated hold-on type paddy thresher is an ergonomically designed thresher-winnower as an alternative to non-environment friendly, liquid fuel-based paddy threshers. The machine performs winnowing and threshing operations simultaneously leading to considerable savings in time, labour and money involved in paddy threshing. The solar operated paddy thresher is provided with three solar panels of 325W each leading to peak time power generation of 975 Wp. The winnower and threshing drum are provided with two separate DC motors of 500W and 250W capacity, respectively. The capacity of the solar panel is designed to provide 6-7 hours of hours of continuous operation on a particular day. The machine is designed for battery less operation leading to reduced capital and maintenance costs. The speed of winnower fan and the threshing drum can be controlled to prevent blowing away of good quality grains or to avoid mixing of straw parts in the clean grains. The present thresher-winnower is configured for easy transport with provision of rubber matted four- wheel support along with a mechanism for folding and un folding of solar panels during transport

Solar Operated hold-on type paddy thresher

Commercial potential:

High commercialization potential through licensing the design to private companies, State Agricultural Department, development agencies, FPOs, NGOs, and farmers' groups.

Impact:

The solar-operated paddy thresher enhances efficiency, sustainability, and cost-effectiveness by eliminating fossil fuel dependence and reducing operational costs. Its simultaneous threshing and winnowing save time, labor, and money, while adjustable speed controls ensure better grain quality. Designed for easy transport and battery-less operation, it provides 6–7 hours of continuous use, promoting clean energy adoption and sustainable farming.

Agro-ecoregions Suitability:

All over India