

NICOBAR AGRO-ECOSYSTEMS

Indigenous Heritage and Scientific Interventions

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Our deepest gratitude is extended to the tribal farming community, village captains, Self-Help Groups (SHGs), rural youth, women farmers, and farmer groups across the Nicobar Archipelago. Their openness to innovative agricultural practices, trust in scientific interventions, indigenous knowledge, and enthusiastic participation in demonstrations, trainings, and field activities constitute the true foundation of this publication. Their resilience and commitment continue to inspire sustainable agricultural development in these unique island ecosystems.

We gratefully acknowledge the support of the PME Cell, ICAR–CIARI, for its valuable assistance in reviewing and facilitating the publication of this book.

Finally, we acknowledge with sincere appreciation the contributions of all researchers, extension professionals, collaborating institutions, development agencies, reviewers, and well-wishers who directly or indirectly supported this endeavour. We hope this book serves as a valuable reference for researchers, extension professionals, students, policymakers, development practitioners, and farmers working towards sustainable and resilient agriculture in the Nicobar Islands.

Authors / Editorial Team

ICAR–Krishi Vigyan Kendra, Nicobar

ICAR–Central Island Agricultural Research Institute

FOREWORD



The Nicobar District—a pristine archipelago in the southern stretch of Andaman and Nicobar Islands—represents a unique tropical agro-ecosystem defined by rich ecological diversity, a distinct climate, and a vibrant tribal heritage. The agricultural landscape of these islands is deeply intertwined with the social, cultural, and economic identity of the Nicobarese community, where traditional land use and farming practices have sustained local livelihoods for generations.

Central to this agrarian fabric is the coconut palm, which serves as the economic backbone and cultural foundation of the region, occupying nearly 90% of the cultivated land. However, despite rich traditional knowledge, the coconut sector in Nicobar has historically remained predominantly bound to a subsistence level due to overcrowding, non-intensive cultivation, geographical isolation, high logistical costs, and vulnerability to emerging bio-threats like the Rugose Spiralling Whitefly (RSW).

To bridge these gaps, ICAR–Central Island Agricultural Research Institute (ICAR–CIARI), Port Blair, through its extension arm, ICAR–Krishi Vigyan Kendra (KVK), Nicobar, has been actively engaged in field-based technology assessments, refinements, capacity building, and frontline demonstrations.

This comprehensive volume brings together scientific rigor and field-based insights across key thematic areas:

- **Documentation of Indigenous Knowledge:** Highlighting the sustainable praxis of the traditional *Tuhet* joint-family agricultural system and indigenous tuber (*Nicobari aloo*) cultivation.
- **Scientific Plantation Management:** Detailing Integrated Crop Management (ICM), eco-friendly Integrated Pest Management (IPM), and surveillance protocols against key pests like the Rhinoceros Beetle and Rugose Spiralling Whitefly.
- **Post-Harvest Innovations & Mechanization:** Evaluating transformative, drudgery-reducing, and value-adding technologies tested in tribal villages—such as Solar Copra Drying Technology, scientific Virgin Coconut Oil (VCO) production, and the ergonomic Dweep Coconut Leaf Separator.

- **Livelihood Diversification & Farmer Impact:** Showcasing One District One Product (ODOP) initiatives, water resource interventions, and practical success stories of progressive tribal farmers adopting Integrated Farming Systems (IFS).

I extend my heartiest congratulations to Dr. Santosh Kumar, Senior Scientist & Head, KVK Nicobar, and the entire team of contributors for their commendable dedication and fieldwork in compiling this valuable literature. I am confident that this book will serve as an indispensable resource for extension workers, researchers, policymakers, and development agencies committed to sustainable island agriculture, indigenous resource conservation, and long-term tribal empowerment.



Dr. Jai Sunder
Director (Acting)
ICAR-CIARI, Sri Vijaya Puram

FOREWORD



The island ecosystems of India present distinct agricultural opportunities and challenges, where geographic isolation, fragile natural resource bases, and climate variability necessitate tailored extension strategies and climate-resilient interventions. The Nicobar Islands showcase a remarkable example of how traditional ecological wisdom can be harmonized with modern agricultural science to foster sustainable rural development.

Under the administrative guidance of ICAR-ATARI, Krishi Vigyan Kendra (KVK), Nicobar, has been serving at the forefront of technology transfer, capacity building, and grassroots innovation. This publication systematically documents KVK Nicobar's efforts in bridging research and farming communities across the remote archipelago.

The chapters curated in this book outline a holistic roadmap for agricultural transformation by scientifically validating age-old indigenous practices like *Tuhet* farming, natural fencing, and organic nutrient cycling. They focus on promoting resource-efficient production, multi-tier cropping, and pest mitigation to safeguard coconut farming—the vital lifeline of these islands. Furthermore, the book demonstrates low-cost processing machinery and renewable energy solutions, such as solar copra drying and mechanized VCO extraction, to boost net farm returns while empowering tribal youth and women's Self-Help Groups (SHGs). It also highlights field-tested Integrated Farming Systems (IFS), kitchen gardening, and rainwater harvesting (*Jalkunds*) through the real-world success stories of progressive local farmers.

I complement the authors, scientists, and technical staff of ICAR-KVK Nicobar and ICAR-CIARI for synthesizing their field experiences into this structured, actionable book. I express my deep gratitude to the tribal community and local leaders, whose active participation made these achievements possible. May this work serve as an inspiring guide for scientists, extension officials, and policymakers working toward agrarian prosperity and ecological sustainability across island and coastal regions.

A handwritten signature in dark ink, appearing to be 'Pradip Dey'.

Pradip Dey

Director

ICAR-ATARI Zone - V Kolkata

Preface

The Nicobar Islands represent a unique agro-ecological region of India, renowned for their rich biodiversity, fragile island ecosystem, vibrant tribal culture, and centuries-old traditional farming practices. Agriculture in these islands is not merely a means of livelihood but an integral part of the social, cultural, and environmental fabric of the Nicobarese community. This book has been prepared to document the experiences and scientific interventions of ICAR–Krishi Vigyan Kendra (KVK), Nicobar, in preserving indigenous knowledge while promoting sustainable agricultural development and livelihood enhancement. It reflects years of field-based extension activities, technology demonstrations, farmer interactions, and participatory approaches implemented across the Nicobar district.

The book is organized into three broad sections. The first section documents the traditional Tuhēt farming system and the indigenous agricultural knowledge of the Nicobarese community, highlighting its ecological sustainability and relevance to climate-resilient agriculture. The second section focuses on coconut-based farming systems—the backbone of the Nicobar economy—and presents improved production technologies, scientific cultivation practices, value addition, and post-harvest innovations introduced by KVK Nicobar. The third section showcases livelihood improvement initiatives, including Integrated Farming Systems, crop diversification, vegetable cultivation, improved livestock management, and success stories of progressive tribal farmers that have contributed to enhancing income, productivity, and nutritional security.

It is hoped that this publication will serve as a useful reference for researchers, students, extension professionals, policymakers, and development agencies working in island agriculture, indigenous knowledge systems, and tribal livelihood development. I express my sincere gratitude to the tribal farmers of Nicobar for their wholehearted cooperation and willingness to share their traditional knowledge and experiences. I also acknowledge the dedicated efforts of the scientists, technical staff, and all stakeholders of ICAR–KVK Nicobar and ICAR–CIARI, whose support has made this publication possible. It is my sincere hope that this book will contribute to the promotion of sustainable agriculture, conservation of indigenous knowledge, and the long-term prosperity of the farming communities of the Nicobar Islands.

Dated:15 Aug, 2026

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