

TRAINING COURSE MANUAL

**MODEL TRAINING COURSE
ON
“LIVELIHOOD IMPROVEMENT OF FARM FAMILIES
THROUGH INTEGRATED FARMING SYSTEM”
(17- 24 NOVEMBER, 2015)**

Course Director
Dr. Naresh Babu

Course Coordinators
**Dr. Jyoti Nayak
Dr. J. Charles Jeeva**

Sponsored by
**Directorate of Extension
Department of Agriculture and Cooperation
Ministry of Agriculture and Farmers Welfare
Govt. of India, New Delhi**



**ICAR- Central Institute for Women in Agriculture
(Indian Council of Agricultural Research)
Bhubaneswar-751 003, Odisha**

LIVELIHOOD IMPROVEMENT OF FARM FAMILIES THROUGH INTEGRATED FARMING SYSTEM

(Training Course Manual: MODEL TRAINING COURSE ON "LIVELIHOOD IMPROVEMENT OF FARM FAMILIES THROUGH INTEGRATED FARMING SYSTEM" organized at ICAR-CIWA, Bhubaneswar during 17– 24 NOVEMBER, 2015)

© 2015 **ICAR- Central Institute for Women in Agriculture**

Training Course Manual by
Dr. Naresh Babu
Dr. Jyoti Nayak
Dr. J. Charles Jeeva

Published by
The Director
ICAR- Central Institute for Women in Agriculture
Plot No.50-51, Mouza-Jokalandi
Post-Baramunda, Bhubaneswar – 751 003, Odisha, INDIA
Phone : 0674-2386220; Fax : 0674-2386242
E-mail : director.ciwa@icar.gov.in; Web : <http://www.drwa.org.in>

FOREWORD

The gender perspective on resource management is important at the farm as well as household level because women are often the primary users of various resources for agriculture, livestock as well as health and sanitation. This is mainly attributed to the fact that there exists a clear gender demarcation with regard to tasks both at farm level and at household level. There is a vast scope to improve the household profitability by judicious utilization of family labour using innovative practices and ensuring multiple uses of various household and farm resources. This is possible through women empowerment by way of specific trainings and critical need based support. Women's participation is to be facilitated with the understanding of the community in which they are a part. The close association between women and natural resources exists because of their social and economic roles which have for generations required them to provide food, fuel and fodder from the surroundings. It is true that women have much more pragmatic knowledge of the practices in which they are engaged, leading to a kind of specialization. When we talk of managing and preserving traditional knowledge, the pivotal role played by women cannot be ignored. Another rationale for enhancing the skill of women with regard to Integrated Farming System (IFS) is due to the fact that they are the key custodians of traditional knowledge. Thus, women especially need to be given training on the latest developments in IFS. For which, the extension functionaries or the trainers involved in women development programmes, need to be empowered with the latest developments in the field of IFS.

In this backdrop, this Model Training Course entitled "Livelihood improvement of farm families through Integrated Farming System" has been organized at ICAR-CIWA, Bhubaneswar from 17th to 24th November, 2015. I appreciate the efforts of the course team for bringing out this Compendium-cum-Training Course Manual, which will be an useful reference material for the extension functionaries of State Development Departments, Krishi Vigyan Kendras and other related stakeholders.

Date: 17-11-2015
Place: Bhubaneswar


(S.K. SRIVASTAVA)
Director

PREFACE

An integrated farming system represents multiple crops (cereals, legumes, tree crops, vegetables etc.) and multiple enterprises (animal husbandry, bee keeping, fish farming etc) in a single farm. It is widely accepted as a means of achieving sustainable agriculture. To meet the multiple objectives of poverty reduction, food security, competitiveness and sustainability, several researchers have suggested farming systems approach to research and development. A farming system is the result of complex interactions among number of interdependent components where an individual farmer allocates certain quantities and qualities of four factors of production, *viz.*, land, labour, capital and management to which he has access. Farming system research is considered as a powerful tool for the management of natural and human resource in developing countries like India. This is a multi-disciplinary whole-farm approach for solving the problems of small and marginal farmers. This approach aims at increasing income and employment from small-holdings by integrating various farm enterprises and recycling crop residues and by-products within the farm itself. Under the gradual shrinking of land holding, it is required to integrate the land-based enterprises like fishery, poultry, duck rearing, apiary, field and horticultural crops etc. within the bio-physical and socio-economic environment of the farmers to make farming more profitable and dependable. In this context, this Model Training Course entitled "Livelihood improvement of farm families through Integrated Farming System" has been organized at ICAR-CIWA, Bhubaneswar to share knowledge on the latest development in gender mainstreaming in IFS and sensitize the extension functionaries of state departments and scientists of KVKs.

The objectives of this training programme are: (i) to provide advance training to the state agricultural officers and scientists of ICAR/SAUs/KVKs and improve their skills in the area of IFS, (ii) to show the trainees live demonstrations/experiments on IFS to improved resource-use efficiency, and (iii) to provide an opportunity to discuss and exchange ideas/ knowledge sharing between the academics and with the experts/resource persons who have made notable contributions in this area. Keeping this in view, the course contents have been planned accordingly, and this compendium cum training course manual has been brought out for the benefit of the participants. We express our sincere gratitude to the Directorate of Extension, Department of Agriculture and Cooperation, Ministry of Agriculture and Farmers Welfare, Govt. of India for sponsoring this course. We are highly indebted to Dr. S. K. Srivastava, Director, ICAR-CIWA for necessary guidance and support in organizing the programme and for bringing out this compendium.

Course Team

TOPIC	PAGE
Role of Women in Integrated Farming System <i>Dr. S. K. Srivastava</i>	1
Gender Mainstreaming- Concepts and Methodologies <i>Dr. B.N. Sadangi</i>	6
Gender Perspective in Agricultural Research and Development <i>Dr. H. K. Dash</i>	11
SEAGA Tools for Gender Analysis in Agriculture <i>Dr. Sabita Mishra</i>	17
Gender Disaggregated Data-Analysis and Importance <i>Dr. Ananta Sarkar</i>	21
Gender and Extension Perspective in Integrated Farming System <i>Dr. Shivaji D. Argade and Ms. Chaitrali Mhatre</i>	26
Role of KVKs in Engendering Integrated Farming System <i>Dr. S.K. Rout</i>	34
Optimizing Water Productivity through IFS Models <i>Dr. S. K. Jena</i>	39
Rice-based IFS for Livelihood of Farm Families <i>Dr. Annie Poonam and Sh. P. K. Nayak</i>	47
Opportunities for Farmwomen in Horticulture <i>Dr. H.S. Singh and Dr. Deepa Samant</i>	53
Secondary Horticulture: A Potential Sector for Gender Mainstreaming <i>Dr. Kundan Kishore, Dr. Deepa Samant and Dr. H. S. Singh</i>	59
Low Cost Protected Cultivation of Vegetable Crops: A Women-friendly Technology <i>Dr. Naresh Babu, Smt. Tapaswini Sahoo & Sh. S.K. Behera</i>	64
Livelihood Enhancement of Farm Families by Integrating Tuber Crops in IFS <i>Dr.M.Nedunchezhiyan, Sh.S.K. Jata, Sh.K.H. Gowda and Sh.V.B.S. Chauhan</i>	72

Enhancing Farm Income through Vegetable Cultivation <i>Dr. A. K. Das</i>	89
Seed Management in Home Garden for Family Nutrition <i>Dr. Laxmi Priya Sahoo and Dr. Abha Singh</i>	93
IFS Models for Food and Nutritional Security <i>Dr. Abha Singh, Dr. Jyoti Nayak and Er. P. K. Rout</i>	100
Mushroom Cultivation in Odisha: Opportunities and Challenges <i>Dr. Kailash B. Mohapatra</i>	106
Apiculture for Livelihood Support to Womenfolk <i>Dr. Pravat Kumar Sarangi</i>	110
Gender Issues in Livestock Production and Management <i>Dr. Anil Kumar</i>	116
Improvement of Livelihood Security of Farmwomen through Dairy Farming based IFS <i>Dr. Biswanath Sahoo, Dr. A. K. Panda and Dr. Anil Kumar</i>	124
Family Poultry: A Viable Option for Poverty Alleviation & Gender Equity in India <i>Dr. A. K. Panda, Dr. Biswanath Sahoo and Dr. Anil Kumar</i>	132
Duck Rearing in IFS: Potential Option for Women Empowerment <i>Dr. Suryakant Mishra</i>	137
Freshwater Aquaculture for Food and Nutrition Security <i>Dr. Pratap Chandra Das</i>	143
Technological Empowerment and Drudgery Reduction in IFS <i>Dr. Jyoti Nayak, Ms. Gayatri Moharana & Er. P.K. Rout</i>	152
Ergonomic Risk Assessment Techniques and Participatory Evaluation of Stress Index <i>Ms. Gayatri Moharana, Dr. Jyoti Nayak & Er. P.K. Rout</i>	158
Impact Assessment of IFS Models through Participatory Approach <i>Dr. J. Charles Jeeva</i>	170