Integrated farming systems for enhancing resource-use efficiency and livelihood security of small and marginal farmers

An integrated farming system represents multiple crops (cereals, legumes, tree crops, vegetables etc.) and multiple enterprises (animal farming, 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, duckery, apiary, field and horticultural crops etc. within the bio-physical and socio-economic environment of the farmers to make farming more profitable and dependable.

The research in integrated farming systems (IFS) for the last few decades in India has revealed that the enterprise planning and implementation are usually done in component approach in isolation and needs scientific and systematic approach. In this situation, optimization techniques are useful for resource allocation and designing IFS on scientific basis. Farming systems studies involving a number of enterprises and taking the physical, socio-economic and bio-physical environments into consideration are complicated, expensive and time-consuming. There exists a chain of interactions among the components within the farming systems, and it becomes difficult to deal with such inter-linking complex systems manually. This is one of the reasons for slow progress in the field of farming systems research in India and elsewhere. This problem could be overcome by construction and application of suitable whole farm models.

Optimization techniques, such as linear programming and compromise programming, fuzzy linear programming, etc. are useful tools for efficient resource allocation under various constraints. Optimization models optimize the use of farm resources, costs/profits or determine the optimum requirements for specific farm income, and can analyze farm response to policy change in an effective way.

In the proposed training programme "Integrated Farming Systems for enhancing resource-use efficiency and livelihood security of small and marginal farmers", various recent advancements made in the area of IFS will be deliberated and discussed, which will assist the participants in designing and developing IFS models under different farming situations with the objectives to generate adequate income and employment for the farmers to reduce poverty and unemployment. The training course will be organized for 8 days w.e.f. 20th December to 27th December, 2013 at the Division of Agronomy, Indian Agricultural Research Institute, New Delhi.

Objectives

Adoption of IFS for enhancing resource-use efficiency and livelihood security is the need of the hour as a powerful tool for management of natural resources and to achieve sustainability in agriculture. 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 academies and with the experts/resource persons who have made notable contributions in this area.

Course Content

The course content will broadly cover the following topics: (i) Farming systems: Importance and concept; (ii) Procedures and methodologies; Farming system analysis, (iii) Economic analysis of different integrated farming systems, (iv) Agricultural systems diversification, (v) Indigenous Technical Knowledge; PRA techniques; Integrated farming systems for different agro-ecosystems, Organic farming, Conservation farming systems etc.

Travel, Boarding and Lodging

The boarding, lodging, and TA expenses of the selected participants from the State Departments of Agriculture, Horticulture and others will be met from the funds provided by the Ministry of Agriculture as per norms and operational guidelines for organization of Model Training Courses. Participants will be paid to-and-fro fare for journey by train (up to II AC) as per their entitlement or bus or other means of transport in vogue as the case may be. Actual TA will be paid on production of a tickets/certificate by the participants. However, the participants coming from ICAR/SAUs/KVKs, the TA and DA expenditure will have to be borne by their nominating organization/institute, and the boarding and lodging will be provided by the organizers. The participants will be provided shared accommodation in the Kaveri Trainees Hostel of the Institute.

About IARI

Indian Agricultural Research Institute, popularly known as 'Pusa Institute', is the country's premier institution for research and higher education in the field of agricultural sciences. The primary mission of the institute is to explore new frontiers of science and knowledge, and develop human resources to provide leadership to the country in technology development and policy guidance. The Institute conducts basic and strategic research, serves as a centre for academic excellence, and provides national leadership in agricultural research, education and extension through development of new concepts, hypotheses and technologies.

The Division of Agronomy is one of the oldest divisions of the IARI, and is engaged in teaching, research, extension and training activities since pre-independence times. It has contributed significantly in developing improved production technologies which ushered Green Revolution in Indian agriculture. The

division is adequately equipped with modern infrastructure for carrying out high quality teaching and research leading to development of environmentally-sound and economically-viable agronomic technologies for sustainable high productivity of cropping systems involving cereals, pulses, oilseeds and vegetables.

IARI is located about 8 km west of New Delhi railway station and 10 km from the Inter-State Bus Terminal. The weather in Delhi during December will be cold, with a maximum temperature of 15-20^{0}C and minimum temperature of 8-12^{0}C, with about 70% relative humidity.

Application form for Participation in Model Training Course

(To be sent to the Course Director/Coordinator of Model Training Course concerned and not to the Indian Council of Agricultural Research)

Institute _____ at _____.

1. Full name (in block letters):
2. Designation:
3. Present employer and address:
4. Address for correspondence (Give E-mail, Tel. / Mobile No.):
5. Permanent address:
6. Sex: Male/Female
7. Marital status: Married/unmarried
8. Academic record (Indicate in tabular form examinations passed from B.Sc. degree onwards, Main subjects, Year of passing, Class / rank / University / Institution, Other information):
9. Signature of applicant (indicate name of place and date):
10. Recommendation of the forwarding Institute (Signature with date, designation / address):

CERTIFICATE

It is certified that the above information was furnished as per the office record and was found correct.

(Signature and Designation of the sponsoring authority)

Who can participate?

This Model Training Course is meant for the state extension/developmental officers of agriculture and horticulture, soil conservation and watershed management; and scientists/teachers/researchers in SAUs /ICAR Institutes in the area of Agricultural Sciences (Agronomy/Soil Science/Agricultural Physics /Agricultural Extension/Plant Physiology/Agricultural Economics/Agricultural Engineering/Soil Water Conservation /Horticulture/Soil Science or any other related disciplines like Agroforestry. The total number of participants shall be limited to 25.

How to apply?

Application for participation in the training programme may be made in the prescribed format as given herewith and forwarded by the competent authority where the candidate is employed. Applicants may send an advance copy if they anticipate delay in forwarding through proper channel. However, the final selection will be made only if the application duly recommended by the competent authority is received, which must not be later than one week after the closing date. The closing date for receipt of applications is **05.12.2013.** The selected candidates will be intimated within 3 days of the receipt of their application.

After the candidates are intimated of their selection, they should immediately reply with firm acceptance. Cancellation at the last moment for casual reasons after acceptance is undesirable as it will deprive other eager candidates who could have availed of the opportunity.

For more information Contact

Dr. U.K. Behera	Dr. Anil Kumar	Dr. Anchal Dass
ukbehera2008 @yahoo.com	*anilhpau2010@ gmail.com*	*anchal_d@ rediffmail.com*

Applications may be sent to:

Dr. Anil Kumar
Course Coordinator
Division of Agronomy
Indian Agricultural Research Institute
New Delhi - 110 012. INDIA.
Telephone No.: 011-25841488(O)
Fax: 011-25482283
Mobile: ***08743839766;*** **08527759564; 09968130091**

INFORMATION BROCHURE

MODEL TRAINING COURSE

on

Integrated Farming Systems for Enhancing Resource-use Efficiency and Livelihood Security of Small and Marginal Farmers

(December 20-27, 2013)

Dr. U.K. Behera
Course Director

Dr. Anil Kumar
Course Coordinator

Dr. Anchal Dass
Course Coordinator

DIVISION OF AGRONOMY
INDIAN AGRICULTURAL RESEARCH INSTITUTE, NEW DELHI-110 012