

One Week Summer Course on “Agroforestry System and Management Practices” concluded at TFRI, Jabalpur

One Week Summer Course on “**Agroforestry System and Management Practices**” was concluded at Tropical Forest Research Institute, Jabalpur on 5th June, 2015. Certificates were distributed to the participants by Dr. Sumit Chkrabarti, senior scientist of the Institute.

Dr. Rajiv Rai, Head of Agroforestry Division and Training Co-ordinator delivered the five days training report. During the training, lectures on a wide range of topics related to Agroforestry such as prevalent Agroforestry models with silvi – agri, silvi-agri-horti, silvi-agri-lac, bamboo with various models, taungya system, seed physiology, propagation techniques, management of insect pest and diseases, plant ideotypes, promising NTFP species and their scope in agroforestry systems, wind breaks and shelter belts, soil types and management of degraded land with agroforestry systems, measures of soil and water conservation, carbon sequestration with agroforestry systems, GIS application etc. were delivered to the students by expert team of TFRI scientists. Exposure visit to field and plant tissue culture laboratory were also provided to the participants.

During the inaugural session a book entitled “**Agroforestry System and Management Practices**” was released by Dr. U. Prakasham, Director, TFRI.

During the feedback session the training participants praised and appreciated TFRI for organizing such a nice and diversified training course on agroforestry which will definitely help the learners, the young budding scholars in their future endeavors.

During the event, Head of all divisions, Scientists, Officers and staff of the Institute were present. The programme was conducted by Dr. Nanita Berry, Scientist and Course Director of training and it was ended with vote of thanks Dr. Rajiv Rai, Head of Agroforestry Division and Training Co-ordinator. He wished the participants well in all their future endeavors.

Glimpses of Valedictory Function





Distribution of certificates to participants during the closing ceremony

TECHNICAL REPORT



One Week Special Summer Course on Agroforestry System and Management

01 to 05, June, 2015.

Organized by
Agroforestry Division,

Venue : Genetics Seminar Hall

Prepared by

Dr Rajiv Rai,
Training Coordinator &
Head Agroforestry Division

TROPICAL FOREST RESEARCH INSTITUTE
Indian Council of Forestry Research & Education)
(An Autonomous Council of Ministry of Environment, Forest & Climate Change)

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One Week Special Summer Course Agro forestry Systems and Management Practices, 01 to 05, June, 2015

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One Week Special Summer Course on Agroforestry System and Management Practices

TROPICAL FOREST RESEARCH INSTITUTE JABALPUR

(01 to 05 June 2015)

Report on Technical Sessions 1 to 5 Agroforestry System and Management Practices

During the One Week special Summer course on Agroforestry System and Management Practices organized by Agroforestry Division at Tropical Forest Research Institute, Jabalpur, lectures were organized of various scientific personnel in five different technical sessions. The expertise in allied fields expressed and shared their valuable experiences with participants under going Graduation in forestry programmes at SHTI Allahabad [Agricultural Institute] and JNKVV Jabalpur.. During the course Dr Rajiv Rai, Training Cordinator and Head Agroforestry, TFRI ,Jabalpur , expressed that, many Agroforestry programmes started in 1970's in various countries suffered on account of ignoring socio economic structure of the farm house hold in the design of these programme. The empirical studies on behaviour of house hold on the farm tree cultivation are now gaining importance to design socially acceptable Agroforestry programmes.the data have been collected in pre structured schedule in personnel interviews Among social factors family, size, literacy, size of agricultural farm holding , religion, mobility, showed significant influence on farm tree cultivation. Cropping intensity, agricultural income, on farm income, total house hold income influences cultivation of trees on the farm. The socio economic factors encourage the level of on-farm tree cultivation and design socially acceptable Agroforestry models.

Dr Rajiv Rai, further expressed that, Trees play an important role in ecosystem in all terrestrials and provide a range of products and services to rural and urban people. As natural vegetation is cut for agriculture and other types of development, the benefits that trees provide are best sustained by integrating trees into agricultural system — a practice known as agroforestry. Farmers

have practiced agroforestry since ancient times. Agroforestry focuses on the wide range of trees grown on farms and other rural areas. Among these are fertilizer trees for land regeneration, soil health and food security; fruit trees for nutrition; fodder trees for livestock; timber and energy trees for shelter and fuel wood; medicinal trees to cure diseases and trees for minor products viz. gums, resins or latex products. Agroforestry is a form of multiple cropping which satisfies three basic conditions i) there exists at least two plant species that interact biologically, (ii) at least one of the plant species is a woody perennial and (iii) at least one of the plant species is managed for forage, annual or perennial crop production."

ICRAF (WAFC) has coined Agroforestry, AF is collective name for land use systems and practices where woody perennials are deliberately grown on same land management unit as agriculture crop and/or animals, in some form of spatial arrangement or temporal sequence. To qualify for agroforestry there must be ecological and economic interactions between the components

Dr Yogeshwar Mishra expressed Seed production area is an important and immediate source of well adapted and quality seed which is produced at a moderate cost. The seed from seed production area is widely used in countries where tree improvement programme has just made a beginning. They have limited use in countries with advance tree improvement programme. Seed production area is also known as seed stand. However, many workers prefer to distinguish between them. Seed stand refer to a group of trees that has been identified and set aside for development into seed production area. Seed production area denote the seed stand which has been upgraded by removal of inferior trees and managed for seed production. Candidate tree: A tree which has been selected for grading because of its desirable phenotypic attributes such as superior growth, good form, better wood quality, etc. but has not been compared with other superior trees i.e. check trees for final selection. Select, superior or plus tree: A tree that has been compared, selected and recommended for development of production and breeding populations but has not been tested for its genetic merit.

Shri RajaRam Singh IFS Dy CF Agroforestry , expressed that , Agro-forestry refers to those land use practices in which woody perennials trees, shrubs, woody vines, bamboo, palms are grown in association with agricultural crops or pastures, sometimes with livestock or other animals (eg. Insects such as bees, fish etc) and in which there are both ecological and economic interaction between the woody plants and other components. He communicated that there are three attributes in Agroforestry 1) Productivity:- Most if not all, agro-forestry systems aim to maintain or increase production (of preferred commodities) as well as productivity (of the land). The different ways of improving productivity may be:- increased output of tree products, improved yields of associated

crops, reduction of cropping system inputs and increased labour efficiency. 2. Sustainability:- Agroforestry has the potential of maintaining the production potential of soil and its output alongwith all resources involved in the system, thereby achieving the overall goal of conservation of natural resources and fertility of soil. 3. Adaptability:- Agroforestry interventions that are introduced into the new areas should also conform to the local farming practices so that it is adopted by the majority of the farmers of the area . The experiences of agroforestry practices in countries in tropics reveal the choice of species and perceptions of the tree species in supplementing farm income in addition to the ecological benefits vis-a-vis limitations need to be addressed for successful adoption of agroforestry practices by the farmers.

Dr N.Roycoudhry expressed that, In BIOLOGICAL CONTROL OF INSECTS , Insects constitute one of the major limiting factors of crop production. The insect pests damaging seeds, seedlings and plants/trees seriously hamper the quality and quantity of production .Plant species growing in Agroforestry have a rich complex of insect fauna and suffer assiduously from insect damage in varying degree, right from the seed to the finished products.Insects cause extensive damage to seed crops planting stocks, nurseries, plantations and natural forests, resulting in low productivity. It is the need of the hour to assess damage caused by key insect pests and develop biocontrol techniques through integrated way (IPM) by means of host resistance and use of microbial, allelochemical and potential parasitoids and predators. He further expressed that, Sericulture is the agro-forest based cottage industry, capable of generating substantial and gainful employment in the rural / forest areas. It deals with host-plant cultivation, rearing of silkworm, production of silkworm seeds and commercial cocoons. The silk industry comprises the production of raw silk. So, the industry has got two distinct phases – one is sericulture proper and the other is raw silk industry. Sericulture has vast potential in India and there is wide scope for improvement in silk yield. Appropriate knowledge about the culture, planting techniques of its host plants, silkworm breeding, rearing, seed production including post cocoon technology and their sustainable management can enhance productivity and concomitant improvement in terms of quantity and quality of silk production of the country and economy of silkworm rearers.

Dr Sanjay Singh expressed role of Wind breaks and Shelter belts in Agroforestry. He further expressed role of such system beneficial in agroforestry. Shri Dheeraj Gupta explained the importance of GIS and its application measures in Agroforestry .These methods are although, non traditional and their application is increasing day by day with application of modern science and farmers are preferring on such applications as awareness is being generated by them gradually. Dr A.K.Bhowmik shared soil types of Madhya Pradesh and deficiency symptoms of nutrients in soil and their management practices Shri NPS Nain focused on issues pertaining to situations of soil

and water conservation, which are quite alarming .The Agrforestry practices needs which comprises of multi- cropping systems ha a much higher requirement of water during the initial phase for establishments of various models and subsequently after establishment the water level enhances in the soil .Dr Sumit Chakrabarti expressed Principles and Practices of Organic farming and their application in high submerged paddy –tree models (Silvi-agri models and Silvi-pastrol models) adopted in pockets of West Bengal , Orissa and in Bihar , he further expressed his experiences in various models prevalent in Himachal Pradesh in Apple orchards with tree combinations along with grasses on slopes in Himachal Pradesh

Dr R.K. Verma expressed Biofertiliser has a prominent role in Agroforestry and enhances productivity without compromising with ecological imbalance or causing pollution in the environment .Dr PB Meshram expressed use of Vermi-compost as a important component in Agroforestry .He further expressed that leaves , twiggs etc of herb, shrubs , tree can be used in preparation of vermin-compost. Dr Avinash Jain expressed his views on Forestry, Agroforestry in terms of climate change. Dr Naseer Mohd expressed his views and experiences on suitable plant Ideotypes and attributes suitable in multiple agricultural and tree cropping systems in various models prevalent in different Agro- eco zones in India .

Dr. (Mrs) Nanita Berry , the course director supplemented the possibilities of medicinal plants in Mhakoshal region in Madhya Pradesh. She expressed her views on possibilities of different models in agroforestry systems as per agro- climatic zones and policy issues which need prime attention .

Celebration of World Environment Day on 5th June 2015 during Summer Course

The participants from universities SHBIT , Allahabad and JNKVV, Jabalpur prepared posters in terms of Vishwa paryavarn diwas (World Environment Day) which was celebrated on 5th June,2015 during summer course focusing the issues for carbon sequestration measures outside forest, through promotion of agro - forestry models and made their poster presentation as was proposed in the course programe. The judges base on the performance of posters and their presentation ranked their poster with 1 st Prize to Shri Diwakar on theme Sericulture in Agro-forestry systems, 2nd Prize to Shri Abhishek on theme Promotion of home gardens in carbon sequestration and 3rd Prize to Pankaj Raghuvanshi on theme Silvi - horti models in Agro-forestry systems and consolation prize to Shri Vivek on theme Shiftig cultivation and promotion of Shelter belt and Wind break in Agroforestry systems.

Shri Sanjay Singh submitted global issues pertaining to problems in Environment pollution and increasing pressure of carbon foot print and suggested to recycle, reduce and reuse of items for making our environment eco - friendly . Dr Rajiv Rai, Taining Coordinator and Head Agroforestry submitted his views before the house on local issues starting reuse of bye- cycle for daily routine work instead of use of two and four wheeler's for small daily needs work, carrying cloth bag for daily needs as purchase of fruits and vegetables , bread and butter instead of carrying in plastic bags reducing hazardous impact of plastic from daily life . He further expressed his concern for rise in pollution in River Ganges, River Yamuna, River Narbada due to mixing of pollutants in these rivers from industries , tanneries , garbage etc. and in River Gour in vicinity of TFRI from pollutants flown from 2-3 dairies established on the bank of river as per reports on water pollution submitted by NEERI, Nagpur and High Court of Jabalpur being vigilant and issuing orders , but local government could not initiate any progress inspite of orders of High court to reduce pollution, he informed studies conducted by Dr. R. K. Shrivastava dept of Environment Science in Gour river many fishes and water borne organisms are at the verge of extinction. He further suggested lets start the wisdom of cleaning the environment starting from our home, to mohallas, to local municipal wards and then towards township for increasing sensitization among local community residing in township , rather than taking up global and international issues with no progress and targets set up with goals should be achieved , step by step and gradually over a period of time .

Closing ceremony

Dr (Mrs) Naita Berry was coordinating this closing ceremony programme, certificates were distributed to each participant , and all of them submitted their feed back programme and were thankful for organizing the programme on their request .

Dr Rajiv Rai passed vote of Thanks to participants, committee members, resource persons with special thanks to Dr U.Praksham , IFS & Director TFRI , Shri P.Subramanyam, IFS & Head of office , Shri Raja Ram Singh IFS & DyCF Agroforestry, Shri NPS Nain Dy C F, Dr Nanita Berry, Shri R K.Mishra, Shri Saurabh Dubey, Ku. Priyanka Mishra , Shri Rajesh Mishra , Shri Sunil Jhariya, Shri Ratan Gupta, Shri Deepak Yadav, Shri Karande jee and Shri Henery Anthony without there support the course could not had been conducted so smoothly and Sucessfully. Dr Rajiv Rai, Training Coordinator was also thankful to Director TFRI for trusting him and allocating the responsibility for organizing and coordinating one week Special Summer Course on “ Agroforestry Systems and Mangement Practices” in the organisation for students of forestry.

Glimpse of technical sessions on One Week Summer course on Agroforestry Systems and Management Practices



ROW I – Dr. Avinash Jain, Dr. P.B. Meshram, Dr. N. Roychoudhury, Dr. U. Prakasham(Director), Dr. R.K. Verma, Dr. Rajiv Rai(Training Coordinator), Smt. Neelu Singh, Dr. S. Chakrabarti, Dr. Nanith Berry (Course Director)
ROW II – Dr. Naseer Mohd., Dr. A.K. Bhowmik, Dr. M. Kundu, Dr. Fatima Shirin, Shri N.P.S. Nain, Dr. Yogeshwar Mishra
ROW III – Shri R.B. Manjhi, Shri Dheeraj Gupta, Shri I.T.K. Dilraj, Shri Alfred Fransis, Shri Rakesh Kumar, Shri Vijay Patwariya, Shri Diwakar Singh, Shri S.D. Pounikar, Shri Nirpendra Kumar, Shri Rajesh Kumar, Shri R.K. Mishra, Jayant Chaurisya, Shri Vivek Yadav, Ms. Parul Sharma, Shri Sourabh Dubey, Ms. Shiny Reo, Ms. Priyanka Mishra, Shri Pankaj Raghuvanshi, Shri Sonu Dangi, Shri R. Abhishek

Participants of Summer course with Chief Guest, Dr U.Prakasham IFS, Director TFRI, Jabalpur and Dr Rajiv Rai (Training Coordinator) , Resource Persons of different themes and Dr Nanita Berry(Course Director)



Participants attending lecture of Dr (Mrs) Kundu lecture on Physiology and Seed Technology in Agroforestry systems



Dr (Mrs) Kundu lecture on Physiology and Seed Technology of MPT's used in Agroforestry systems



Participants attending lecture of Dr N Roy choudhry on Biological control of Insects and Role of sericulture in Agroforestry systems



Dr N Roychoudhry delivering lecture Biological control of Insects and Role of sericulture in Agroforestry systems



Participants attending lecture of Shri Raja Ram Singh Agroforestry in International Perspective



Shri Raja Ram Singh IFS DyCF Agroforestry delivering lecture Experiences in Agroforestry in International Perspective attended by participants, Dr Rajiv Rai Training Coordinator & Dr (Mrs) N. Berry



Participants of Summer course on Agroforestry systems and Management Practices



Dr R K Verma lecture on Biofertilizers during summer course on Agroforestry systems and Management Practices



Dr PB Meshram lecture on Vermicompost during summer course on Agroforestry systems and Management Practices



Participants attending lecture being delivered Dr Avinash Jain on Forestry, and Climate change and its impact on Agroforestry systems



Dr Avinash Jain delivering lecture Forestry, and Climate change and its impact on Agroforestry systems



Participants attending Lecture Dr Rajiv Rai Training Coordinator Design and Diagnostic survey in Agrforestry systems and Role of bamboo in various models



Dr Rajiv Rai Training Coordinator giving lecture on Design and Diagnostic survey in Agrforestry systems and bamboo in various agroforestry systems & models



Participants attending Lecture Design and Wind break and Shelter break in Agrforestry system



Sanjay Singh giving lecture on Wind break and shelter belt in Agrforestry systems



Participants attending lecture of Dr Sumit Chakrabati on Principle and Practices of Organic farming and its role in Agroforestry



Dr Sumit Chakrabati delivering lecture of Principle and Practices of Organic farming and its role in Agroforestry



Dr (Mrs) Nanita Berry Scientist Agroforestry and Course director Summer course Sharing her experiences with participants of Summer course on Agroforestry Systems and Management practices



Dr Rajiv Rai Training Coordinator Summer course and Head Agroforestry, TFRI sharing experiences with participants of Summer course on Agroforestry Systems and Management practices

Prize Distribution Poster Presentation



Closing Ceremony



Certificate Distribution



