

TRANSFER OF TECHNOLOGY PROGRAMMES FOR ARECANUT

C. T. Jose¹, N. R. Nagaraja¹, D. Jaganathan² and C. Purandhara¹

Technology transfer in agriculture is a system under which various inter related components of technology and the final product (including marketing) are rendered accessible to the farmer. The system also includes institutional capacity for technology adoption, adaptation or rejection, constituting a matrix of technology components and institutional capacities for absorbing technologies. Thus, technology transfer has both functional and institutional meanings. A technology transfer programme would be considered effective when there is minimal or no gap between the potential and realized impacts of the technology. It means that monitoring of the adoption or adaptation of technologies is an integral part of the technology transfer system. Transfer of technology must therefore be preceded and succeeded by technology assessment, asserting that technology transfer and assessment are complementary processes.

One of the prerequisites for effective technology transfer is the appropriateness of the technology. Appropriate technology refers to a technology package which must be technically feasible, economically viable, socially acceptable, environment friendly, consistent with household endowments and relevant to the needs of farmers. This is a dynamic concept, in which the elements of appropriateness will vary over time and space.

The ICAR-Central Plantation Crops Research Institute (CPCRI) adopted a multi-dimensional extension strategy for transfer of technology for the improvement of arecanut farming community, which includes i) training of farmers and extension personnel, ii) refinement and demonstration of technology/products, iii) single window delivery system for technology products, diagnostic services and information through Agricultural Technology Information Centre, iv) cyber extension, v) creating awareness of improved agricultural technologies among the farmers through mass media, extension publications, field demonstrations, kisan melas, interface/ group meetings, seminars, exhibitions *etc.*

1. Trainings: The term training refers to the acquisition of knowledge, skills and competencies as a result of the teaching of vocational or practical skills related to crop cultivation. Training is conducted either at the institute or at the farmer's field. Training programmes for the farmers and officers are conducted regularly with the financial assistance from Directorate of Arecanut and Spices Development (DASD), Calicut, Ministry of Agriculture and Farmers Welfare, Government of India.

2. Front Line Demonstrations: ICAR-CPCRI has been organizing front line demonstrations in farmers' fields on different technologies in

¹ICAR-Central Plantation Crops Research Institute, Regional Station, Vittal-574 243, Karnataka

²ICAR-Central Plantation Crops Research Institute, Kasaragod-671 124, Kerala

arecanut *viz.*, Arecanut Based Multispecies Cropping Systems (ABMCS) involving arecanut, cocoa, banana and pepper, Integrated management of root grub in arecanut, EPN (Entomopathogenic Nematode) for management of arecanut root grub *etc.* with the financial assistance from DASD, Calicut. Such demonstration programmes have proved to be effective in convincing the farmers about the technical feasibility and economic viability of the technologies. Further, these demonstration programmes have multiplier effects in the dissemination of recommended technologies among cultivators at large. These FLDs serve as a model for other farmers to follow this system.

3. Information communication through mass media: Effective utilization of mass media like Radio, TV, Newspapers and Farm Magazines is made to create awareness among cultivators about various production technologies. Further, extension pamphlets, CD ROMs, video cassettes *etc.* are also prepared by the ICAR-CPCRI for effective dissemination and popularization of the available technologies.

4. Exhibitions, Seminars, Kisanmelas and Group meetings: ICAR-CPCRI regularly organizes exhibitions, seminars, kisan melas and group meetings with the co-operation and involvement of various agencies. Such programmes strengthen the efforts for the dissemination of information on arecanut and also provides opportunities for interaction between farmers, scientists and extension personnel.

5. Consultancy - Field visits: Scientists of ICAR-CPCRI regularly visit farmers' fields for identifying field problems, providing technical guidance and suggesting solutions to field

problems. This also provides opportunity for assessing constraints in field implementation of the recommended production technologies and in turn in the refinement of the technologies.

6. Video conferencing: ICAR-CPCRI has launched cyber extension activities utilizing the video conferencing facility covering Kerala, Tamil Nadu, Karnataka, Andhra Pradesh, Assam, Orissa, Bihar and West Bengal as part of strengthening the technology transfer programmes of the Institute in mandate crops *viz.*, coconut, arecanut and cocoa. A group video conferencing system through ISDN was installed at the ATIC (Agricultural Technology Information Center), ICAR-CPCRI, Kasaragod to facilitate interaction between various stakeholders for enhancing technology utilization. The video conferencing facility is effectively utilized for scheduling and implementing interface programmes at regular intervals involving various stakeholders including researchers, extension personnel, farmers and entrepreneurs. It enables interaction of farmers at remote villages with the subject matter specialists of the institute and other centres thereby reducing the time, effort and cost in transfer of know-how from lab to land.

7. ICAR-CPCRI web site: ICAR-CPCRI has implemented many of the Information and Communication Technology (ICT) initiatives in the lines of Web-based systems, interactive software and cyber extension. To place ICAR-CPCRI in the arena of internet to communicate research results to the end users, a website was developed and hosted under the URL www.cpcri.gov.in. Arrangements are made for answering queries on different aspects of crop

improvement, production, protection and processing technologies of palms and cocoa through e-mail.

8. Mera Gaon Mera Gaurav - My Village My Pride: An unique program formulated by Govt. of India in 2015, is the adoption of villages by scientists for effective implementation of agricultural programs as an outreach measure. It enhances lab to land and land to lab research and development opportunities. Scientists regularly visiting the village, conducting programs, giving consultancy services on crop cultivation, sending mobile based advisory, organizing community based meetings and establishment of FLD plots.

9. Publications: Technical bulletins, extension folders, pamphlets, books, CD ROMs *etc.* are also prepared for effective dissemination and popularization of the technologies in arecanut and arecanut based multispecies cropping system among the farmers and extension personnel in official and local languages

a. Extension Folders

- ➔ Arecanut varieties and hybrids (Kannada)
- ➔ Integrated root grubs management in arecanut (English, Kannada, Tamil)
- ➔ Disease management strategies in arecanut and cocoa (English)
- ➔ Multiple cropping in arecanut (English, Kannada)
- ➔ Crown rot disease of areca palm (English, Malayalam)
- ➔ Spindle bug management in arecanut (Malayalam)

➔ Soil sampling methods in arecanut and cocoa gardens (English, Kannada)

➔ Preparation of Bordeaux mixture (English, Kannada)

b. Technical Bulletins

➔ Arecanut cultivation practices (English, Kannada, Malayalam, Tamil)

➔ Calendar for Arecanut (English, Kannada)

c. Training Manuals

➔ Advances in arecanut and cocoa production technology

➔ Computer applications

d. Books

➔ Arecanut

➔ Arecanut based cropping /farming system

➔ Arecanut descriptors

e. e-media

➔ CDs

➔ Website: www.cpcrri.gov.in

f. Magazines/ Journals

➔ ICAR-CPCRI Newsletter (Quarterly)

➔ Indian Journal of Plantation Crops - ICAR-CPCRI, Kasaragod

➔ Annual Report of ICAR-CPCRI

➔ Indian Journal of Arecanut, Spices and Medicinal plants

Programs organized in connection with the centenary year celebration: Many programs on transfer of technology of arecanut (Table.1) have been organized in connection with the

centenary year celebration at ICAR-CPCRI with institute funding and also sponsorship from Directorate of Arecanut and Spices Development (DASD), Calicut and Directorate of Cashew and Cocoa Development (DCCD), Cochin.

Way Forward

➔ Various proven technologies are available for arecanut for improving its productivity and

profitability which has to be disseminated appropriately.

➔ Knowledge, perception and adoption of technologies by farmers and impact analysis are very important.

➔ For successful adoption of technologies coordination between various research, extension/ development agencies and farmers groups is highly indispensable.



Fig.1. Inauguration of Field Day on Arecanut based multispecies cropping system at Palthady, Puttur Taluk.



Fig.2. Inauguration of Training for Women Farmers of Karnataka at ICAR-CPCRI Regional Centre, Kidu, Netta.



Fig.3. Inauguration of Training on cropping system in plantation crops at Balpa, Sullia Taluk.



Fig.4. Scientists-Farmer interface

Table.1. Centenary year programmes on arecanut

Sl. No.	Programme	Sponsor	No. of Participants
January			
1	On-campus training- Advances in Arecanut and Cocoa Production and Processing Technology- ICAR-CPCRI, RS, Vittal (5 th January 2016).	Institute	57
2	On-farm training- Cropping Systems in Plantation Crops- Balpa Village, SulliaTk. (12 th January 2016).	Institute	115
3	On-farm training- Arecanut Based Multispecies Cropping System- Palthady Village, Puttur Tk.(20 th January 2016).	DASD, Calicut	110
4	On-farm training- Arecanut and Coconut Based Cropping Systems- Manchi Village, Bantwal Tk.(23 rd January 2016).	Institute	66
February			
5	Seven on-campus trainings- Advances in Arecanut and Cocoa Production and Processing Technology- ICAR-CPCRI, RS, Vittal.(5 th , 11 th , 16 th , 18 th , 19 th , 23 rd and 24 th February 2016).	Institute	180
6	Field Day- Arecanut Based Multispecies Cropping System- Mundoor Village, Puttur Tk.(29 th February 2016).	DASD, Calicut	100
March			
7	Four on-campus trainings- Advances in Arecanut and Cocoa Production and Processing Technology- ICAR-CPCRI, RS, Vittal (1 st , 8 th , 10 th and 23 rd March 2016).	Institute	113
8	Field day- Arecanut-Cocoa Mixed Cropping System For Higher Productivity- Koyyur, Belthangady Tk. (28 th March 2016).	DCCD, Cochin	110
9	Field day- Arecanut-Cocoa Mixed Cropping System For Higher Productivity- Nellyady, Uppinangady Tk. (30 th March 2016).	DCCD, Cochin	100
April			
10	Three on-campus trainings- Advances in Arecanut and Cocoa Production and Processing Technology- ICAR-CPCRI, RS, Vittal (1 st , 15 th and 24 th April 2016).	Institute	28

May			
11	Two on-campus trainings- Advances in Arecanut and Cocoa Production and Processing Technology- ICAR-CPCRI, RS, Vittal.(27 th and 28 th May 2016).	Institute	48
June			
12	Officers training- Water Resources Department, Goa- Advances in Arecanut and Cocoa Production and Processing Technology-ICAR-CPCRI, RS, Vittal.(16 th June 2016).	Institute	11
July			
13	Two on-campus training- Advances in Arecanut and Cocoa Production and Processing Technology- ICAR-CPCRI, RS, Vittal.(19 th and 29 th July 2016).	Institute	60
August			
14	Five on-campus trainings- Advances in Arecanut and Cocoa Production and Processing Technology- ICAR-CPCRI, RS, Vittal.(4 th , 17 th , 22 nd , 26 th and 30 th August 2016).	Institute	194
September			
15	Four on-campus trainings- Advances in Arecanut and Cocoa Production and Processing Technology- ICAR-CPCRI, RS, Vittal.(9 th , 13 th , 16 th and 22 nd September 2016).	Institute	156
October			
16	Field Day- Arecanut Based Multispecies Cropping System- Palthady, Puttur Tk.(25 th October 2016).	DASD, Calicut	209
17	Eight on-campus trainings- Advances in Arecanut and Cocoa Production and Processing Technology- ICAR-CPCRI, RS, Vittal (1 st , 4 th , 6 th , 13 th , 16 th , 19 th , 22 nd and 24 th October 2016).	Institute	327
November			
18	Training to women farmers- Multi Species Cropping System in Arecanut Garden for Higher Income- ICAR-CPCRI, Research Center, Kidu (5 th November 2016).	DASD, Calicut	125
19	Two on-campus trainings- Advances in Arecanut and Cocoa Production and Processing Technology- ICAR-CPCRI, RS, Vittal (23 rd and 24 th November 2016).	Institute	84
December			
20	Kisan Mela- ICAR-CPCRI, Kasaragod (10 th December 2016)		