



## International Journal of Emerging Technologies in Computational and Applied Sciences (IJETCAS)

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### Mass media Interventions and Technology transfer among Banana Growers: Experiences from Tamil nadu, India

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**Abstract:** *The world has become a global village due to the revolution happened in technology and communication domain. In the advent of globalization, the new communication technologies have played vital role in dissemination of information for the development of society. The mass media acts as a powerful communication tool to disseminate technological transfer by sharing of information and helps the agricultural farmers for more agricultural production. The objective of this study is to analyse the role of the media as a catalyst in disseminating information, reach and awareness created by mass media, behaviour pattern of banana growers to adopting technology transfer information in Tiruchirapalli district. The paper aims to research how media plays an important role in spreading information and create awareness to accept and adopt various technological methods of banana cultivation. The present investigation carried out in Tiruchirapalli district of Tamil Nadu indicated that the progressive farmers were the most credible source of information for the Banana growers. A quantitative analysis was employed to check the role of media and create awareness among banana farmers. A random sample survey was conducted among banana farmers in 10 villages from the chosen four blocks. Critical aspects of banana cultivation like soil type, planting materials, fertilizer, and irrigation practice, number of irrigation and method of manures applications were tested through structured interview schedule. Results of the study show that, various technological developments adopted in banana cultivation and efficient use media for technological transfer by the banana growers were also brought out in this study.*

**Keywords:** *Communication Technologies, Media technologies Dissemination of Information, behaviour pattern, Banana growers, Technological Transfer*

#### I. Introduction

##### A. Mass Media and Development

The needs of the mankind opened the way for new inventions. In the same way the process of globalisation opened new avenues of development in Indian social architecture after the introduction of new economic and liberalisation policy in the end of 1990's. The foreign direct investments, Global trade and International collaborations paved a platform to develop media as international, national and mass media. The media developments in contents and technologies have brought the world as global village. The www (World Wide Web) technology have converge all media in the Global village. The credibility of the message, Timely delivery of technology, Information seeking behaviour of the clientele are very important for the strengthening the role of any media in agricultural technology transfer (Escalada *et al.*, 1999).

Mass media play an important role in the society. It should reflect the structure and content the various socio-politico-economic and cultural activities of the society. In conventionally media can be classified as Print, electronic and New media. As per RNI 2013 (Registrar of Newspapers of India) 94,067 (12,511 newspapers and 81,556 periodicals) were registered. According to [www.allinidaradio.gov.in](http://www.allinidaradio.gov.in), about 450 government supported All India Radio (AIR) stations, 266 private FM Channels under Phase I and phase II (<http://www.becil.com>) licensed to operationalise by the Government, 795 private television channels ([www.mib.nic.in](http://www.mib.nic.in)) are beaming their signals from Indian territory. After globalisation, classifications of print and electronic media have further extended as rural, urban, cosmo media. The new media computer-internet-website dominates all the media and converged into it. The international and national media contents are influencing mass media.

Media provide information to its audience and to develop their knowledge and attitude. In general, media disseminate news or information to get attention of the people towards on it. The Nature of media is to instruct, educate and entertain its readers/Target groups/audience/users. Also the audience should get satisfied with the contents which disseminate by the media. The Uses and Gratification theory suggests that media play an active role using and choosing media. The audience are expecting that media. Therefore it has become an important communication tool for raising various issues in the society.

Mass media act as a vehicle to communicate or transferring information. During the post World War-II, many countries have faced problems and to find solutions for the social needs of the people: the eradication of poverty, illiteracy, unemployment etc., in this period 'Development Communication' has been emerged in the field of Mass Communication. The famous social scientists Willbur Schramm, Lerner and Rogers have argued the development through Mass media. This development was termed by Schramm as magic multipliers.

After the introduction of globalization, the primitive farming has no longer has its value. To meet out present day challenges in farming sector, a dynamic technology generation and transfer of technology system is needed. Hence it is imperative to keep the farmers with profitable and remunerative agriculture through latest communication gadgets. (Siva Balan, K.C et.al, 2013). The farmer should become an Agripreneur for meeting the market challenges. The farm income can be doubled which certainly based the technology usage of the famers. For the techno transfer, the mass media channels are playing the pivotal role. As for as extension functionaries are concerned, their preference for delivery of technologies were towards Radio and Television, since the reach of mass media is more than the print media. (Suganya, 2000)

### **B. National and International Scenario of Banana Production**

India is the largest producer of banana with an annual production of 29.78 million tones from 830.50 thousand ha and accounts to 19% of the total world production. Predominantly banana production in India is polyclonal and under small farming system. The banana production in India is hampered by various biotic and abiotic stresses and production has been seriously threatened by decreasing soil fertility and yield in most of the varieties. The present study is conducted to overcome these constraints and to improve the production and productivity of banana.

#### **Area and Production of Banana**

World:	121.85 million tons/ 10.10 million hectares
India:	29.78 million tons from 8.30 lakh hectares
Tamil Nadu:	8.25 million tons from 125.5 thousand hectares
Thiruchirapalli:	0.55 million tons from 15,132 hectares

Source: National Horticultural Board Report 2012

Moreover the post harvest losses accounts for 22-30% with a tune of Rs. 300 crores annually. National Research Centre for Banana (NRCB) and State Agricultural Universities (SAUs) have developed many usable and fruitful technologies for the benefit of farming community. However, people are lack in awareness to adopt some of the technologies.

## **II. Technology Adoption**

The word 'adopt' has the meaning 'to take up and practice as one's own, to accept formally and put into effect'. Adoption of a particular message or production recommendation practice by a farmer implies the voluntary acceptance of the message and its practice. The adoption of decision to act has a series of actions and thought action. Adoption behaviour is differing from one individual to another based on their characteristics, familiarity with the techniques and availability of the resources (Bhople S.R, 1998). Though the plant protection methods are recommended scientifically by the field and extension functionaries to obtain maximum benefit, all the farmers are not adopting the practices uniformly (Alagesan. V, 1989) Wide differences exist among farmers in the level or extent of adoption. Differential adoption of plant protection technologies have been a growing concern amongst researchers as well as extension functionaries (Phusel *et al.*, 2007). It is an outcome of multifaceted factors, operating in the field situation besides various other factors. Generally adoption behaviour would be specific to particular innovations, individuals and environments (Heong KL and Escalada MM, 1997). The productivity of banana depends mainly on the technical know-how possessed and the extent of its use in production by the banana growers. Also extension programmes on various technologies are being transferred with help of different mass media channels, gaps exist in production by the farmer on his farm (Somasundaram, D. and Singh, S.N, 1978). Therefore, there is a need to study the information seeking behavior, Adoption of recommended banana production practices by the banana growers.

The mass media plays a crucial role in reaching/ transferring the technologies from lab to the field (Puthirapradap, 2003) In recent time, globalization plays greater role in marketing the produces across the globe. The present investigation was under taken with this background. The inference of the study can be utilized in the selection of mass media channels and for better dissemination of farm technologies in the mass media channels.

## **III. Methodology**

A sample of 100 banana growers were selected from 10 villages from Thottium, Musiri, Lalgudi, Andanallur blocks in Tiruchirapalli district. The 10 respondents' (banana growers) from each village were randomly selected. The sample includes both male and female respondents. A semi-structured interview schedule was constructed to collect data. The schedule contains the various critical aspects of banana cultivation with adopting

new technology like soil type, planting materials, fertilizer, and irrigation practices, and method of manures applications, use of media dissemination of information were tested through structured interview schedule. Pilot study was conducted to fine tune the schedule before the actual data collection had taken place. The data collected by personal interviewing of sample respondents. The data were checked for completeness, classified, tabulated and analyzed with the help of surveys and interpretation.

#### Banana farmer field visit by Extension functionalities



#### **A. Impact Analysis**

The Research centers/organizations have developed new technologies on crop improvement, production, protection, post-harvest technology etc. These technologies have been disseminated to the farmers and entrepreneurs through available mass media channels. According to NRCB 2012 annual report, the banana cultivation in India has been increased from 3.5 lakh hectares to 4.5 lakh hectares and total annual production increased from 16.9 million tons to 29.8 million tons. The communication effort through media is one of the main factors for this tremendous growth of banana cultivation in this area and as well national level.

The impact assessment depends on the economic, social and environmental aspects on adoption of new technologies. Banana is long duration crop (11 to 15 months) depending upon varieties, the lag period for adoption of new technologies would be approximately 3-4 years. So, this is the apt time to initiate ex-post impact assessment of new technologies developed by research organizations and SAUs over a period of time. During the impact assessment, the economic impacts (adoption aspects, economic studies i.e., returns to investment etc.), the social impacts (studying the effects of new technologies on poverty, gender issues, food security, employment, cash flow, income, rural-urban migration etc.) and the environmental impacts (including studies on pollution, sustainability, natural resources etc.) were carried out.

#### **B. Garrett's Ranking Technique**

To find out the credible sources of information in the adoption of banana cultivation Garret Ranking Technique (Garret, 1981) has been used. The respondents were asked to rank the factors as their own. The respondents ranking were converted into as score value with the help of Garrett's ranking techniques.

$$\text{Per cent position} = 100(R_{ij} - 0.5) N_j$$

Where,

$R_{ij}$ - Rank given for the  $i$ th factor by the  $j^{\text{th}}$  respondents

$N_j$  - Number of factors ranked by the  $j^{\text{th}}$  respondents

By referring the Garrett's table, the estimated percent position was converted into scores. Then for each factor the scores of each individual were added and the mean values obtained were considered to be most important and then were ranked accordingly.

### III. Results and Discussion

**Table: 1. Sources of information for Banana growers of Tiruchirapalli District**

No.	Sources of information	Garatte Score	rank
1.	Personal contact with subject specialist (at SAUs/Research organizations)	25.00	I
2.	Progressive farmers of mass village	15.00	II
3.	Plant protection dealers	13.00	III
4.	Agriculture extension officer	10.00	IV
5.	Newspaper	9.00	V
6.	Television	7.00	IV
7.	Radio broadcasting	6.00	VII
8.	Books/Magazines	5.00	VIII
9.	Telephone	4.00	IX
10.	Progressive farmers of the other villages	3.00	X
11.	Exhibition	2.00	XI
12.	Internet	1.00	XII

It is evident from Table-1, that the farmers seek the improved agro- technologies from various sources available in the massity. About 40% of information was received through personal visit by farmers, where as para extension workers (21%) Fellow farmers (11%), Agriculture extension officer (10%), Mass media (9.5%) and Village level workers (8.5%) were the other sources of information. Apart from the research organizations, the banana farmers preferred more towards the progressive traditional farmers of the village, plant protection dealers, Agriculture extension officer, Newspaper release, Television and Radio broad casting as a credible source of information in a descending order.

#### Source of credibility

According to the above table-1, that the personal contact with subject specialist at State agricultural University and Research organizations are considered as the most credible sources for the respondents to collect the information. The locational advantage of the farmers towards Research organizations in the study area may be the reason behind the ranking on source of information. About 40% of information is disseminated through personal visit by farmers themselves to research organization, attending the conferences, seminars, workshops, meetings, group discussions, kissan melas, exhibitions, trainings, field/ frontline demonstration etc. Therefore the research Institutes should scale up more extension activities in surrounding villages.

**Table: 2. Practice wise adoption of Banana through mass media channels**

Sl.No.	Practices	Full Adoption		Partial Adoption		No Adoption	
		No.	%	No.	%	No.	%
1. Soil	(i) Soil testing	15	15.00	30	30.00	55	55.00
2. Seedling	(i) Sucker selection	26	26.00	30	30.00	44	44.00
3. Varieties	(i) Udhayam	10	10.00	10	10.00	80	80.00
4. High density planting		15	15.00	25	25.00	60	60.00
5. Application of fertilizer							
	(i) Doses	36	36.00	50	50.00	14	14.00
	(ii) Time of application	46	46.00	17	17.00	37	37.00
	(iii) Method of application	42	42.00	20	20.00	38	38.00
6. Application of manures		43	43.00	42	42.00	15	15.50

7. Application of micronutrient						
(i) Banana shakti	30	30.00	15	15.00	55	55.00
8. Bunch cover	08	8.00	12	12.00	80	80.00
9. Drip irrigation	25	25.00	10	20.00	65	65.00
10. Inter crop	35	35.00	10	10.00	55	55.00
11. Plant protection						
(i) IPM schedule	16	16.00	33	33.00	51	51.00
(ii) Serious diseases	21	21.00	43	43.00	36	36.00
12. Harvesting						
(i) Time of harvesting	42	42.00	42	42.00	16	16.00
13. Post-harvest technology						
(i) Training	10	15.00	35	35.00	60	60.00
(ii) Importance of Products	40	40.00	30	35.00	30	30.00
14. Marketing	40	44.00	35	35.00	25	25.00
15. Export	12	12.00	33	33.00	55	45.00

The data with regard to the adoption of 15 improved banana cultivation practices by the growers. It reveal (table-2) that complete adoption means the practices which were adopted by majority of the respondents i.e. time of application of fertilizer (46%), application of manures (43%), method of application of fertilizer & harvesting time (42%) and marketing knowledge (40%). The full adoption of the crop management practices may be due to frequent technology support of Mass traders, Para extension workers, since they are the most benefitted persons during marketing of the harvest. At the same time the farmers were unaware of new improved varieties which fetches bumper yield for the farmers. It was inferred that majority of the respondents did not adopt the important improved cultivation practices such as sucker selection, high density planting, intercropping, postharvest technologies due to lack of awareness. Though the research organizations such as State Agricultural Universities, KVKs, and Central Research stations of ICAR are taking earnest efforts to transfer the new and latest technologies to farmers, coherent group efforts are the need of the hour. The participation of community also required for reducing the technology divide. National Research Centre for Banana (NRCB), Trichy was organizing 'Banana Farmers Clusters' from 2003 onwards which ensures people participation in the technology dissemination. Thereby the selected community cluster is better informed in the Post harvest practices and marketing, Value addition and Banana fiber extraction domains. All the technical know how are disseminated to the farmers, self help groups via the mass media channels.

The farm profitability can be increased only by proper market linkage with the banana growers. It was found that sixty percent of the respondents are not fully aware about the technologies pertaining to the value addition in banana and incurring heavy loss in profit during glut seasons. The mass media channels viz., Radio, TV, Newspapers, Technical bulletins, Handouts, and Extension publications can better potential to link the farmers with the markets. The better informed farmers are better decision makers; they can decide when to sell, where to sell, and how to sell. The Agritech portal, DEMIC services of TNAU, Coimbatore are contributing worth mentioned services for rendering market related information to farmers.

#### IV. Conclusion

The adoption of Banana growers noted in this study is supported by the findings made by Bhople *et al.* (1996), Gomase *et al.*, 1998) and Bhople *et al.*, 1998). Similar findings were also reported by Adhikarya R and Posamentier H (1987), Ingle and Bhagawat (1998) and Deshmukh *et al.*, (1998). From this study, it is concluded that majority of the technology transfer takes place through the personal contacts with central research organizations/state agricultural research centres/KVKs etc., followed by other communication media like farm TV programmes, radio programmes, news papers, books/magazines and journals. Though the mass media channels like electronic and print media makes wide publicity, they are underutilized by the farming community. So, the programmes of these media should be reoriented to reach grass root level of the farming community. The seasonal agricultural information should be highlighted during broadcasting/telecasting of current affairs. To overcome these constraints, the effectiveness of these media has to be improved through quality farm programmes, increasing credibility of media and for vast globalization.

Thus mass media channels are the viable sources of information delivery and technology transfer in the Agricultural sector. The burgeoning population needs the best out of crop production. The doubling the farm income and tripling the crop production will be achieved only by the efficient use of mass media channels in the years to come.

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