



A Study on Mass Media Channels in Promulgating Farm Technologies among Banana Growers in Trichy District of Tamil Nadu

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Authors' contributions

This is a collaborative work together by the authors in terms of collection of data, analyses and manuscript preparation, finalization and approval.

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ABSTRACT

Farming decisions are crucial to farm productivity i.e., providing technical agro information to the farmers at the right time in a right way that leads to assured good yield and sustainable economic returns. In the digital era, there is a clear cut digital gap between knowledge centres and individual farmers. Though knowledge centres develop many novel technologies to disseminate farm information to farmers, the individual farmer face difficulties in accessing those information. Thus bridging the information gap is crucial for extension services to occupy a strategic position in the transfer of technology (ToT) in the agricultural sector. The Information and Communication Technology (ICT) tools such as Electronic media (Radio, television) print media (newspapers, magazines, posters and notices etc.) and new media (Computer, Internet, Website, Smartphone, Social media) play a pivotal role in bridging the gap between the source (Knowledge centres) and target audience (Farmers). In the information explosion era, digital interventions could revitalize the ToT practices. The present study assesses the satisfaction level of mass media communication in the dissemination of cultivation technology among banana farmers in Tiruchirapalli district of Tamil Nadu.

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Keywords: Agro information; digital divide; mass media communication; transfer of technology; information and communication technology (ICT) and knowledge centres.

1. INTRODUCTION

Among the 138 million farm holdings at national level, around 85 per cent belongs to small and marginal farmers and their performance is essential for ensuring food security. The agricultural development is an important component of faster, more inclusive sustainable growth approach. The knowledge and skills are crucial requirements for improving farm productivity [1]. That's why the extension system had played its role in transfer of production oriented technologies and yielded self reliance in food production. The agricultural information plays a pivotal role from sowing to marketing phases of farming and there by accelerates agricultural productivity, farm profitability and in turn leads to better rural livelihoods. In this context agricultural communication plays a vital function in knowledge empowerment of farmers and rural community [2].

1.1 Banana Cultivation in India

Banana is an important fruit crop of many tropical and subtropical regions of India. Banana fruit is reserve of energy, contains more of carbohydrate, phosphorus, calcium and iron. Bananas are grown in tropical regions of the world. Banana is called as "Apple of paradise". Banana used as dessert fruit and for culinary purpose. All the parts of the banana are used such as the leaves and bark are used as biological plates. The various products like banana puree, powder, flour, chips, vinegar, jam, jelly and wine can be prepared. It is referred as "Kalpatharu" because of multifaceted uses. (<http://uasr.agropedias.iitk.ac.in>). It is cultivated in India in an area of 830.5 thousand ha and total production is around 29,779.91 thousand tons, productivity 35.88 MT/ha. and 29.19 is percentage share in world of total production. In India main banana growing states are Tamil Nadu, Maharashtra, Gujarat, Andhra Pradesh, Uttar Pradesh and Karnataka. (<http://apeda.in>). Bananas are the world's most exported fresh fruit in terms of volume and value (<http://www.fao.org>). India exported 1,27,230 tonnes of banana, fetching ₹447 crore (USD 60 million), between April 2019 and January 2020, which is nearly 30 per cent more in terms of quantity and 49 per cent in value terms over the

corresponding period last year (<https://www.itfnet.org>).

1.2 Banana Cultivation in Tamil Nadu

Tamil Nadu ranks first in production with 60 T/ha. Banana contributes 37% to total fruit production in India. Banana occupies 20% area among the total area under crop in India. Tamilnadu ranks first in productivity in India. (<http://www.hpmindia.com>). Paddy, Millets, Pulses, Banana, Sugarcane, Cotton are the major crops cultivated in the District.

1.3 Banana Cultivation in Tiruchirappalli

Tiruchirappalli district comes under Cauvery Delta Zone (CDZ). The general climate is tropical and the temperature ranges from Maximum of 38°C and Minimum of 24°C. The normal rainfall received by the district is 818 mm. The district receives major share of its rainfall from North East monsoon. The district economy, as 70 percent of the population is engaged in Agriculture and allied activities for their livelihood. The District has a Geographical area of 4,40,383 Hectares. Of which the net area cropped is 1,41,282 Hectares. Out of which about 98739 Ha are irrigated and about 66652 Ha are rainfed. The River Cauvery irrigates about 51,000 Ha. in Trichy, Lalgudi and Musiri Divisions (<https://tiruchirappalli.nic.in>). Paddy, Millets, Pulses, Banana, Sugarcane, Cotton are the major crops cultivated in the District. Normally banana cultivated 9167 hectares in the district. The HPM's R&D Department works closely with Banana farming Areas across the southern India to improve efficiency and increase returns from the farm gate to export markets (<http://www.hpmindia.com>). The seasonality prevailing and natural resources help the banana growers to get appreciable yields and good returns. Since the production technologies are specific to banana cultivation, it is the specific role of the extension personnel to take the information from lab to land deliverable at the site of the recipient in timely manner.

1.4 Agricultural Communication

Agricultural communication is a field that focuses on communication about agriculture-related information among agricultural stakeholders and

between agricultural and non-agricultural stakeholders. The success of agricultural development programmes largely depends on the nature and extent of use of mass media in mobilization of people for development. In many developing countries it was evident that the agricultural production and farm profitability was geared up with the effective use of mass media. Radio, Television has been acclaimed to be the most effective media for diffusing the scientific knowledge to the masses [3]. In a country like India, where rural literacy level is low, the choice of communication media is of critical. The agricultural information i.e., from sowing to marketing phases of farming accelerates agricultural productivity, farm profitability and in turn lead to better rural livelihoods carried out by mass media in knowledge empowerment of farmers and rural community [4]. In this context, a study was conducted to discover the popularity of Information and Communication Technology tools in popularizing banana technologies among the banana growers.

2. METHODOLOGY

The Study was conducted in five selected blocks such as Thottiyam, Lalgudi, Andanallur, Mannachanallur and Tiruverambur Trichy district of Tamil Nadu state. The Quantitative -Survey method was used for selecting samples. About 750 questionnaires were distributed to respondents. 644 duly filled in questionnaires were collected from the respondents for the analysis. A simple statistical parameter like percentage was used for the interpretation of data.

3. RESULTS AND DISCUSSION

3.1 Level of Satisfaction of Respondents' in Getting Banana Cultivation Technologies Using Various Media

Mass media is a powerful tool for development communication. Mass media communication is more credible and gets immediate effect than other communication processes [5]. Though Print media is a major source to disseminate agricultural information, the illiteracy of the farmers decides the source of information.

Table 1. Shows that regarding the level of satisfaction by the respondents Radio was rated with 35.7% respondents highly satisfied regarding getting the news/ information on the banana cultivation through different media,

19.9% satisfied, 22.2 % neutral, 13.2% dissatisfied, and 9.0% highly dissatisfied. By listening to radio, farmers' knowledge was increased significantly by the educational intervention. Thus radio had an effective role in improving awareness among farmers [6,7]. For Television, It was 50.8% highly satisfied, 35.2% satisfied, 6.2% neutral, 6% dissatisfied, and 1.8% of the respondents highly dissatisfied. On getting information on banana cultivation through ICT, majority of the respondents were satisfied with the information on banana cultivation through Television medium particularly than through other media. The level of satisfaction by the respondents using Newspaper was, 45.5% highly satisfied, 39.3% satisfied, 10.7% neutral, 3.8% dissatisfied, and 0.7% of the respondents highly dissatisfied. For Agriculture magazines, it was 21.8% very satisfied, 37.4% satisfied, 31.9% neutral, 6.6% dissatisfied and 2.3% highly dissatisfied of the respondents.(Fig. 1).

3.2 Level of Satisfaction/Gratification of Respondents on Banana Cultivation Technologies Availed through Mass Media

The Table 2 shows the level of satisfaction/gratification on banana cultivation using advanced technologies through mass media regarding "Soil test, selection and treatments of planting materials, High density planting, Banana Shakti, Drip irrigation & fertigation, Bunch cover, Udhayam- a new variety, Banana stem trap, Bio-control agents, Inter crop system, Post-harvest technology, Banana Fibre materials, Banana Marketing" analyzed.

It is seen from Table 2 pertaining to soil test, 31.1% of the respondents level of satisfaction is recorded as highly satisfied, 33.1% satisfied, 18% neutral, 11.2% dissatisfied and 6.7% of the respondents dissatisfied through Media (If the soil pH is more than 8.5, foliar spray of 2% Banana Shakti at 4, 5 and 6 months after planting is recommended. If the soil pH is less than 8.5, soil application of 10g Banana Shakti per plant at 3 months after planting is recommended). In the case of Selection and treatments of planting materials, 24.7% of the respondents level of satisfaction was rated as highly satisfied, 40.1% satisfied, 17.4% Neutral, 13.7% dissatisfied and 4.2% of the respondents were highly dissatisfied through Media. (The plant should have approximately 25-30 active roots with a root length of not less than 15 to 20 cm and treat the suckers with 0.1% carbendazim+ 0.05%

Table 1. Level of satisfaction of respondents' in getting banana cultivation technologies using various media (n=644)

Media	Highly dissatisfied (%)	Dissatisfied (%)	Neutral (%)	Satisfied (%)	Highly satisfied (%)
Radio	9.0	13.2	22.2	19.9	35.7
Television	1.8	6.0	6.2	35.2	50.8
Newspaper	0.7	3.8	10.7	39.3	45.5
Agriculture magazines	2.3	6.6	31.9	37.4	21.8
Computer/ Internet/ mail	11.9	15.1	36.5	22.2	14.3
Telephone/ Mobile Phone	6.9	7.9	34.3	33.6	17.3
Any others	7.3	1.8	52.7	27.3	10.9

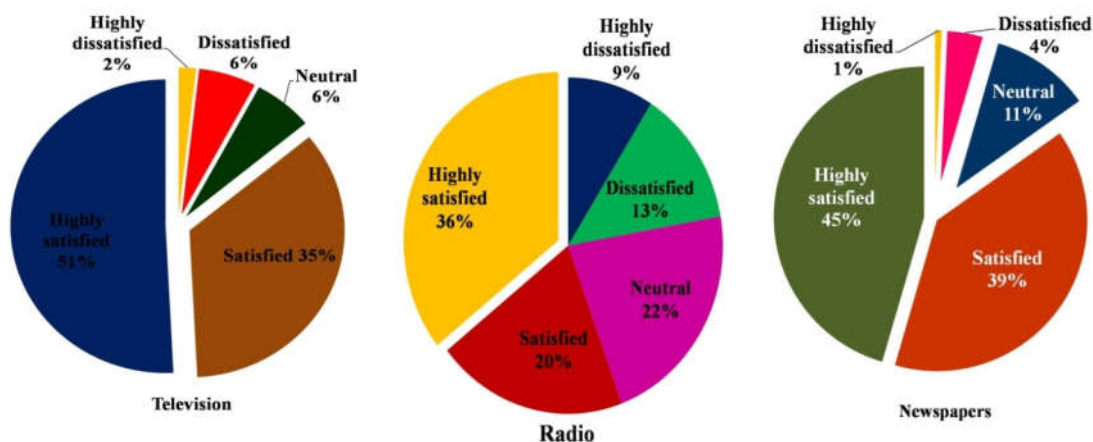


Fig. 1. Level of satisfaction of respondents' in getting banana cultivation technologies using various media (n=644)

Triazophos/0.2% or neem oil by soaking for 25-30 minutes or dip the suckers in cowdung/ mud slurry and later sprinkle with 40 g of carbofuran granules).In the case of micronutrient mixture of 'Banana Shakti', 25.8% of the respondents' level of satisfaction was rated as highly satisfied, 32.5% satisfied, 22.4% neutral, 14.9% dissatisfied and 4.5% of the respondents highly dissatisfied on banana cultivation using advance technologies through Media. In the case of application of Bio-control agents information, 39.8% of the respondents level of satisfaction was rated highly satisfied, 33.9% satisfied,13.4% neutral, 10.9% dissatisfied and 2.2% of the respondents highly dissatisfied with the media (The bio-control agents are found to be very effective in controlling the fungal, bacterial and nematodes and increasing the growth and yield of banana). It was evident from

the study that, among the thirteen technologies created by ICAR-NRCB, a majority of the respondents were highly satisfied with the application of bio-control agents (plant protection system). Information about Soil testing (soil management), Suckers selection (selection of planting materials) and "Banana Shakti"- a micronutrient mixture (nutrient management) followed.

In the case of new variety, from the Table 2, Udhayam,12.6% of the respondents' level of satisfaction was rated highly satisfied, 19.7% of the respondents satisfied, 16% of the respondents dissatisfied, 32.5% of the respondents are neutral and 19.3% of the respondents dissatisfied regarding new variety 'Udhayam' banana cultivation technologies through Media.

Table 2. Level of satisfaction/ gratification of respondents on banana cultivation technologies availed through mass media (n=644)

Technology	Highly dissatisfied (%)	Dissatisfied (%)	Neutral (%)	Satisfied (%)	Highly satisfied (%)
Soil test	6.7	11.2	18.0	33.1	31.1
Selection and treatments of planting materials	4.2	13.7	17.4	40.1	24.7
High density planting	17.9	15.8	27.3	22.8	16.1
Banana Shakti	4.5	14.9	22.4	32.5	25.8
Drip irrigation & fertigation	16.3	13.0	32.9	21.1	16.6
Bunch cover	12.6	15.1	26.2	30.6	15.5
Udhayam	19.3	16.0	32.5	19.7	12.6
Banana stem trap	10.6	21.7	25.9	25.5	16.3
Bio-control agents	2.2	10.9	13.4	33.9	39.8
Inter crop system	7.9	12.9	26.7	31.8	20.7
Post-harvest technology	8.4	19.3	26.9	29.5	16.0
Banana Fibre materials	8.9	21.9	24.5	32.3	12.4
Banana Marketing	7.3	19.4	26.6	30.1	16.6

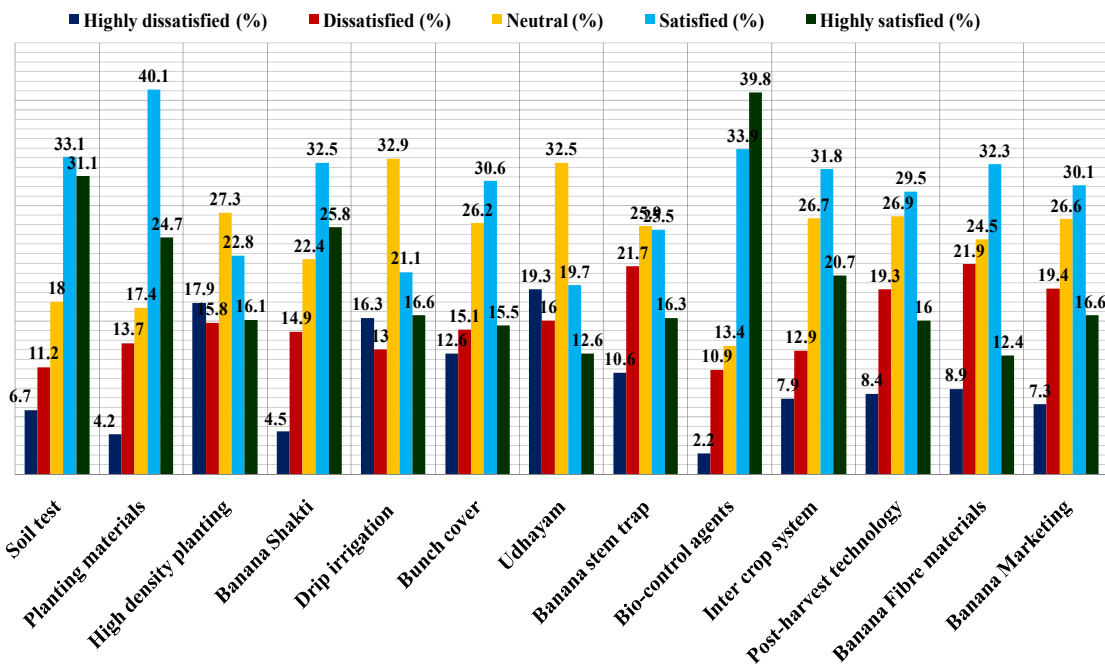


Fig. 2. Level of satisfaction/ gratification of respondents on banana cultivation technologies availed through mass media (n=644)

3.3 Perceived Significant Change in Banana Cultivation Practices Causing

It is inferred from Table 3 that among 13 factors “Bio Control agents” was ranked as first followed by the Soil test was ranked as second and Selection & treatments of planting materials was ranked as third. Using

Friedman Test for the reliability was found(0.867). In general, majority of the farmers follow the application of bio-control agents (*Trichoderma viride* NRCB-1, - *Nemacinu-Paecilomyces lilacinus*, *Nemacens-Pseudomonas fluorescens* and *Beauveria bassiana*)to control the pest and diseases (Wilt, Nematodes, stem and corm weevils) management in the field.

Table 3. Perceived practices causing significant change in banana cultivation (n=644)

Factors	Mean	SD	Mean Rank	Reliability
Soil test	3.71	1.21	8.21	0.867
Selection and treatments of planting materials	3.67	1.11	7.97	
High density planting	3.04	1.32	6.08	
Banana Shakti	3.60	1.15	7.82	
Drip irrigation & fertigation	3.09	1.29	6.08	
Bunch cover	3.21	1.24	6.59	
Udhayam	2.90	1.27	5.66	
Banana stem trap	3.15	1.24	6.25	
Bio-control agents	3.98	1.08	9.02	
Inter crop system	3.44	1.18	7.18	
Post-harvest technology	3.25	1.18	6.74	
Banana Fibre materials	3.18	1.17	6.53	
Banana Marketing	3.29	1.17	6.87	

In the analysis, bio-control factor was placed first followed by other factors. The Government departments (Dept. of Agriculture/ Horticulture/ KVKs) provide the mobile soil testing facilities to check pH value of the soil. Also NRCB helps banana growers to test their soil and technical advice with fertilizer applications "i.e without soil there is no life". Soil test occupies second place among other factors. Similarly, the sucker selection & planting materials and pre-treatments play an important role among the farmers. The farmers are advised to select suitable sword suckers.

4. CONCLUSION

Agricultural communication is playing a very prominent role for creating the awareness on scientific information and technology to farming community [8]. Mass media are the channels of communication which can expose large numbers of audience to the same information at the same time. The coverage of different subject matter may extend from agriculture, horticulture, animal husbandry, agricultural marketing, and agricultural engineering to rural development including gender mainstreaming. The mass media conveys information by audio (radio, campaigns); visual (pictures, film), audio visual (television, mobiles, new media such as online sources) and print (posters, newspapers, leaflets). The advantage of mass media to extension services is the accuracy, higher speed and low cost than any other channels of communication [9]. The absence of feedback and tailor made advisories could not be possible since the message is broadcasted for the mass not for the individual or group of audience [9]. The utilization of print media depends on literacy level, time availability and affordability to

purchase the news paper and agri magazines. Farming decisions are crucial to farm productivity i.e. providing technical agro information to the farmers at the right time in a right way that leads to assured good yield and sustainable economic returns [10]. It was inferred that TV was more effective than radio as an agri information source [11]. A dedicated Kisan TV channel could keep an eye and inform farmers about the changes in weather, global markets etc., so that farmers can plan ahead and take the right decisions well in time. However, mass media cannot do all the jobs of an extension agent. It was also advocated the seasoned agricultural communicators as "gatekeepers" should be employed for agricultural programmes on radio and television stations [12]. Among the mass media, print and electronic media found to be the most suitable for Banana farming community as well as development of advanced technologies [13]. The mere presence of radio and television had a positive impact on adoption of agricultural technologies [14]. The agricultural nodal offices should exploit the services of the local reporters and local circulation to reach target specific information to the niche farmers who are in special need of timely and variety and season specific information. Agricultural officers especially banana specialists should reach out to the farmers through periodic meets at their farms if possible by rotation to motivate them and encourage newer cultivation. There is a need to stabilize the production of banana in order to take advantages of mass media (Radio and TV time slots, mobile apps) can be enhanced and discussions can be organised to use to popularize the various banana cultivation technologies introduced by National Research Centre for Banana (NRCB), Trichy, Tamil Nadu [15].

CONSENT

As per international standard or university standard guideline participant consent has been collected and preserved by the authors.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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