

## **COMMUNICATION LINKAGE MECHANISMS USED BY EXTENSION PERSONNEL FOR TRANSFER OF TECHNOLOGY TO FARMERS IN RAJASTHAN**

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### **ABSTRACT**

The study was conducted in Jaipur and Sikar districts of Rajasthan. The sample of 39 respondents was taken for the study. For measurement of dependent and independent variables, suitable separate questionnaires/schedules were developed and data were collected by personal interview method. The data so collected were subjected to analysis by using suitable statistical tools for final interpretation. Majority of respondents had PG degree, possessed more than five years of job experience, belonged to rural family background, farming as parental occupation, attended more than two trainings, low to medium level of job satisfaction, job commitment and communication facilities. Trainings, demonstrations, farm & home visits, field days and publications were mostly used methods/media/channels for TOT to farmers. The only variables-job satisfaction and job commitment were positively and significantly correlated with communication linkage mechanisms. The poor infrastructural facilities, lack of need based appropriate researches on different aspects in integrated manner, lack of clear cut need based policy and programmes, poor economic condition, education and risk bearing capacity and traditional nature of farmers were major problems confronted by extension personnel. The important suggestions were adoption of suitable policy, accountability, persuasive leadership, effective supervision, incentives and rewards to improve the existing linkage mechanisms.

### **INTRODUCTION**

The combined efforts of agricultural scientists, extension personnel and adoption by farmers have paved the way of agricultural development in the country. Though, the journey of agricultural development faced the ups and downs since independence. India made a significant agricultural technology led progress in agricultural development in the post-independence era, particularly in terms of enhanced food security from 'ship to mouth' condition to export oriented condition. This achievement defined the prophets of doom and outpassed the population growth. For the communication of agricultural knowledge to farmers, there is a well developed agricultural extension system based on Training and Visit system operating in the State since 1974. Rajasthan state has made commendable strides in agricultural sector since independence. The total cereal, pulses and oilseed production has increased about three, one and half, fifteen times since 1952-53. The cotton

production grew by about seven times in the same period. Thus, Rajasthan state stands first in bajra, moth, rape and mustard, coriander, guar and cumin production in India. It stands second in barley and garlic production, third in gram, soybean, castor seed production, fourth in total pulses production, fifth in maize, wheat and cotton production and sixth in groundnut and chillies production in India. The key to success story of India and in particular Rajasthan in agricultural sector is the integration of generation of farm technologies by farm scientists transfer through extension personnel for the adoption to farmers i.e. ultimate users. It is well established fact that the information and its spread have immense importance in this highly competitive world. Presently, there is no dearth of technology but what worries is the transfer of technology from its point of generation to the doors of ultimate users. In Agricultural Extension nothing is more important than the transfer of useful ideas / information from one person to another. In present era of scientific & technological

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advancements, the problem of getting across fast emerging technology to the ultimate users in a manner that they put it into practice on the farms, at the home and to the community has posed the greatest challenge to extension system. There is enough of scientifically sound, economically viable, culturally compatible and practically feasible technology available in every field. We have to find out ways and means to bridge the gap between what is known and what is practiced. The technologies developed within the four walls of laboratories and research field, must reach to the farmers at the earliest to speed up the process of transfer of technology amongst the farmers. As per reports of the extension cell of ICAR, New Delhi and various researches, 80 per cent of technologies generated by the researchers are either not transferred to the ultimate users or they don't find applicability in farmers' field. Out of the remaining 20 per cent of the technologies, around 50 per cent don't impress the farmers due to ineffective technology transfer which ranges from language to ineffective demonstration of using the available tools.

Thus, one of the main reasons for low agricultural productivity in India has been the lack of integration among researchers, extension personnel and adoption of innovations on the part of the client system. To achieve a high level of production, it is not enough to develop farm innovations, but it is also necessary to transfer the farm technology from research system to ultimate users- farmers. So effective and efficient communication of farm information is an important prerequisite for enhancing adoption of agricultural innovations and practices. Keeping in focus the above facts in transfer of technology from research system to clientele system through extension system, the present investigation has been designed to examine the "Communication linkage mechanisms of extension personnel for transfer of technology to farmers in Rajasthan" with the following specific objectives:

- (i) Profile of extension personnel
- (ii) Communication linkages used by extension personnel for transfer of technology to farmers
- (iii) Association of extension personnel's independent variables with communication linkage mechanism used for transfer of technology to farmers

(iv) Extension personnel's personal and institutional problems with research as well as client system

(v) Suggestions of extension personnel to improve the existing communication linkage mechanism

## RESEARCH METHODOLOGY

The offices of Joint Director (Ag.Ext.), Jaipur division, Jaipur, Deputy Director (Ag. Ext.) Jaipur and Sikar were taken purposely. Besides, one sub-divisional Agricultural Extension Office from both districts was taken randomly. Further, one Assistant Agriculture Officer and Agricultural Supervisor circle selected randomly from both selected sub-divisional agricultural extension offices. In addition to these offices, three K.V.Ks operating in Jaipur and Sikar district were also taken purposely. Thus, this category of respondents comprises all officers working in these selected offices for transfer of technology. There were 5 respondents from Joint Director Office Jaipur, 4 from Deputy Director Jaipur office, 3 from Deputy Director Sikar office, 4 from Assistant Director Sanganer office and 3 respondents from Assistant Director Sikar office. Besides, there were 2 AAOs and 2 Agricultural Supervisors taken from randomly selected circles. In addition to these respondents, there were 6 respondents from KVK, Kotputali, 6 from KVK, Chomu and 4 from KVK, Fatehpur Shekhawati. Thus, there were totally 39 extension personnel respondents included for the study purpose. On the basis of past researches and importance of respective variable in the context of the study, 8 variables were taken for extension personnel. The relevant scales already developed were adopted to measure relationship of specific variables with slight modifications and suitable schedules / questionnaires were developed following scientific procedures for both independent and dependent variables keeping in view the objectives of the study. Data were collected with the help of well structured questionnaire and interview schedules. The system analysis approach was adopted assuming that systems under study were structurally static at the time of investigation and communication functions were going on. The data were analyzed by using suitable statistical techniques such as frequencies, percentage, total choice scores, standard deviation, zero order correlation, multiple regression analysis.

## RESULTS AND DISCUSSION

### Profile of extension personnel

It is apparent from table 1 that majority of respondents (66.67%) possessed M.Sc.(Ag.) degree whereas only few were having B.Sc.(Ag.) (17.95%) and Ph.D.(Ag.) (15.38%) degree as their educational qualification. Regarding job experience majority of respondents had less than 5 years of service experience on previous post (53.84%) and more than 5 years of service experience on present position (71.79%). There were about three fourth respondents (74.36%) who belonged to rural family background, half of respondents (53.85%) had farming as parental occupation and majority of respondents (79.49%) attended more than two training courses. Besides, majority of respondents had low to medium level of job satisfaction (84.62%), less to moderate level of job commitment (79.48 %) and low to medium level of communication facilities (84.61 %).

### Differential use of media / methods or channels used by extension personnel for transfer of farm technology to farmers

It is obvious from the data in table 2 that trainings of farmers, demonstrations, farm and home visits, field days / field trips and leaflets / bulletins / pamphlets were appeared as most frequently used method / media or channel by extension personnel for transfer of technology to farmers. Whereas, T.V. talks, educational films / film shows, campaigns, advisory letters and crop competitions were the least used methods or media or channel for the transfer of farm technology to the farmers. It can be deduced that extension personnel were using modes and sources according to mandate of their department and its programmes for transfer of farm technology to farmers. The findings further get strength from the past researches of Lakshminarayana and Veerabhadraih (1992), Srivastava *et al.* (1998), Venugopalan and Perumal (1992), Veerasamy *et al.* (1994), Kaushik (2002), Singh *et al.* (2003) and Hai *et al.* (2003).

### Association of extension personnel's independent variables with communication linkages used for transfer of farm technology to farmers

It is apparent from data in table 3 that only two variables namely job satisfaction and job commitment were positively and significantly correlated with

linkages used for transfer of technology to farmers by extension personnel. Thus the null hypotheses are partially rejected. However, non significant relationship with education, job experience, family background, parental occupation, trainings attended and communication facilities was established, however job experience and family background have exhibited negative trend. This speaks that extension personnel with higher job experience and rural family background have lower linkage mechanism for transfer of technology to farmers. This might be due to their higher aspiration. These variables need to be given special attention for strengthening linkage mechanism of extension personnel for transfer of technology. The similar findings have been reported by Talukdar (1984) and Singh *et al.* (1998) in case of job satisfaction while findings of Babu and Sinha (1985) and Jhamthani and Singh (1985) in case of job commitment.

Further perusal of table 3 revealed that amount of variation in communication linkage use for transfer of technology to farmers was jointly explained by all eight variables to the extent of 26.64 per cent. The calculated F-value of 1.3688602 (8 and 30 d.f.) was found to be non significant. However, regression coefficient of all variables was also non significant.

### Extension personnel's personal and institutional problems with research as well as client system

The data in table 4 revealed that cent per cent extension personnel viewed poor infrastructural facilities like vehicle, housing, funds, staff, inputs, communication facilities etc. as major problem and ranked I in their rank order followed by lack of need based appropriate researches on different aspects in integrated manner (92.31 per cent); lack of clear cut need based policy and programmes (84.62 per cent) and ranked II and III in their rank order respectively. The other confronted problems like large area to cover (73.49 per cent), more office work than technical (79.49 per cent), poor policy support for marketing, subsidy, electricity, PHT handling etc (71.79 per cent), lack of co-ordination among various units and ranking was done as IV, IV, V and VI respectively. Likewise, the least important problems were lack of proper execution of existing interaction mechanisms (23.08 per cent, lack of commitment, missionary zeal and incentives (28.21 per cent competition of private sec-

tor (35.90 per cent) and poor follow up of programmes (43.59) as perceived by them.

From the above description it may be deduced that poor infrastructural facilities and lack of need based appropriate researches had emerged as the most important problems confronted by extension personnel. The probable reasons for lower linkage might be due to reduction in budget outlays, more number of felt need of farmers in broad based area, hazy demarcation of programmes and over burdened of extension personnel.

The researches of Ogunwale and Babalolo (1998), Sharma and Sharma (2002), Popat *et al.* (2002) and Girish and Saha (2003) also reported the more or less similar findings.

#### Suggestions of extension personnel

- (i) The extension system should plan need based programmes than target oriented for better utilization of resources in effective manner.
- (ii) Policy support by government for more budget and marketing of farm produce should be extended.

**Table 1: Profile of extension personnel**

S. No.	Variables	Levels	Frequency (n = 39)	Percentage	
1.	Education	B.Sc. (Ag.)	7	17.95	
		M.Sc. (Ag.)	26	66.67	
		Ph.D. (Ag.)	6	15.38	
2.	Job Experience	a) Past experience	No experience	15	38.46
			1-5 years	6	15.38
			6-10 years	5	12.83
			>10 years	13	33.33
		b) Present experience	No experience	0	0.00
			1-5 years	11	28.21
			6-10 years	24	61.53
3.	Family background	>10 years	4	10.26	
		Rural	29	74.36	
		Urban	4	10.26	
		Ru-urban	6	15.38	
4.	Parental Occupation	Farming	21	53.85	
		Service	10	25.64	
		Business	3	7.69	
		Service+Farming	5	12.82	
5.	Training attended	No training	0	0.00	
		One	8	20.51	
		Two	12	30.77	
		Three	9	23.08	
		>Three	10	25.64	
6.	Job satisfaction	Low (36-43)	7	17.95	
		Medium (44-53)	26	66.67	
		High (54-56)	6	15.38	
7.	Job commitment	Less (20-27)	6	15.38	
		Moderate (28-41)	25	64.10	
		High (42-48)	8	20.51	
8.	Communication facilities	Low (10-22)	6	15.38	
		Medium (23-39)	27	69.23	
		High (40-44)	6	15.38	

- (iii) Infrastructural support like staff, budget, inputs, housing and communication facilities etc should be provided.
- (iv) There should be less paper work and more technical work for effective manpower management.
- (v) Master trainers should be persuaded to use method demonstration while organizing lessons for extension functionaries.
- (vi) There should effective quality control and timely management of inputs.
- (vii) It is needed to reorient the extension system in accordance to demand of the day.
- (viii) Research system should provide feasible recommendations for different farming systems.
- (ix) There should be provision for incentives and reward for motivation of field functionaries.

**Table 2: Differential use of media / methods or channels by extension personnel for transfer of farm technology to farmers**

S.No.	Modes and Sources	Total choice score	Rank Order
1	Farm & home visit	96	III
2	Office calls	74	IX
3	Telephone calls	73	X
4	Advisory letters	58	XV
5	Field days/field trips	92	IV
6	Training of farmers	102	I
7	Demonstrations (Result/method)	100	II
8	Publications	78	VII
9	Leaflets/bulletins/pamphlets	89	V
10	Farm magazines	60	XIV
11	Educational films/film shows	50	XVII
12	Campaigns	56	XVI
13	Exhibitions	66	XII
14	Crop competitions	58	XV
15	Farmers tours	61	XIII
16	Radio talks	68	XI
17	T.V. talks	45	XVIII
18	Farm literature	77	VIII
19	Group meetings	79	VI

- (x) For timely and regular dissemination of reliable farm information mass media be appropriately mobilized.
- (xi) Emphasis be given to better human resource management.

**Table 3: Extension personnel personal and institutional problems in maintaining proper linkages with research as well as client system n=39**

S. No.	Nature of Problem	Per-centage	Rank order
1	More office work than technical	79.49	IV
2	Lack of commitment, missionary zeal and incentives	28.21	XII
3	Poor infrastructural facilities like vehicle, housing, funds, staff, inputs, communication facilities etc.	100.00	I
4	Lack of co-ordination among various units	69.23	VI
5	Lack of need based, appropriate researches on different aspects in integrated manner	92.31	II
6	Large area to cover	79.49	IV
7	Lack of proper execution of existing interaction mechanisms	23.08	XIII
8	Poor policy support for marketing, subsidy, electricity, PHT handling etc	71.79	V
9	Poor economy, literacy, risk bearing and customary nature of farmers	56.41	VII
10	Competition of private sector	35.90	XI
11	Highly opinionated political interference	51.28	VIII
12	Lack of clear cut need based policy and programmes	84.62	III
13	Poor follow up of programmes	43.59	X
14	Lack of proper and effective execution of existing interaction mechanisms	46.15	IX

**Table 4: Correlation and multiple regression analysis of extension personnel's independent variables with communication linkages used for transfer of technology to farmers**

S. No.	Independent variables	Correlation coefficient 't' values	Regression Coefficient 'b' value)	Standard error	't' Values
1	Education	0.22175	0.69387	1.816414	0.382
2	Job experience	-0.13616	-0.11485	0.10479	1.096
3	Family background	-0.19493	-2.0071	1.52747	1.314
4	Parental occupation	0.19502	0.03463	0.911316	0.038
5	Trainings attended	0.06565	-0.16466	0.6076	0.271
6	Job satisfaction	0.39436*	0.19424	0.237167	0.819
7	Communication facilities	0.28485	0.11452	1.06037	0.108
8	Job commitment	0.33561*	0.30979	0.180636	1.715

\*Significant at 5% level of probability

 $R^2 = 0.2674150$   $F = 1.3688602$ 

## CONCLUSION

The existing pattern of transfer of technology should be reviewed so that the significance of technology could not diluted and distorted. Personal and socio-psychological attributes of researchers, extension personnel and farmers contributing towards communication linkage mechanism should be further improved so that better linkages can be ascertained. These can be improved by reexamining salary slabs, recognition for good work, keeping provision for incentives and rewards, regular guidance from seniors, infrastructural facilities, modern communication facilities etc. Transfer of technology through extension system was mostly target oriented with little competence of the extension personnel. It should be planned and executed on need based priorities of farmers with the objective to reorient the system. Majority of the extension personnel had low to medium level of job satisfaction, communication facilities and job commitment. Therefore, it is needed urgent attention to improve on the related aspects for better mobilizing of the linkage activities along with higher human resource management.

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