Analysis of Research – Extension – Farmer Linkage in the Arid Zone of India

Surya Rathore[1], S. L. Intodia[2] and R.P. Singh[3]

1. Associate Professor (Agricultural Communication), G. B. Pant University of Agriculture & Technology, Pantnagar–263145 (Uttarakhand), 2. Ex- Director Extension, Rajasthan Agriculture University, Bikaner (Rajasthan)
3. Asso. Director Extension, KVK Hastinapur, S.V.B.P.U.A. & T. Meerut,
Corresponding Author E-mail: suryarathore@gmail.com

ABSTRACT

The present study was carried out in the arid western plain of Rajasthan which included the whole of Barmer district and Phalaudi, Shergarh, Osian and Jodhpur tehsils of district Jodhpur. Fourteen Agriculture scientists and 27 extension personnel were interviewed for the purpose. As far as the contact of scientists with the farmers is concerned, a formal linkage mechanism exists at various levels but it is not so effective in terms of functional dimensions. Field level extension personnel had good contact with the farmers, whereas higher level extension specialists did not have direct and regular contact with the farmers.

Key words : *Research; Extension; Farmer; Linkage;*

Linkage mechanism refers to the mutual and reciprocal connection between research, extension and farmers. Efficient use of resources available to the farmers is achieved through encouraging and facilitating feed back from farmers to researchers through extension personnel who visit and advice farmers on a regular fixed schedule, thus helping researcher to solve actual production constraints faced by farmers (Benor, 1987). Linkage among research – extension – farmer can be considered as a precursor for undertaking and implementing any extension programme at field level effectively. The Agricultural Research Station scientists of Mandore have been quite active in conducting zone specific research under the aegis of Rajasthan Agricultural University and the subject matter specialists of Krishi Vigyan Kendras and scientists of Central Arid Zone Research Institute and officials of State Department of Agriculture are actively involved in transferring the technologies to the farming communities in the arid zone of Rajasthan. It is imminent that research-extension linkages ought to be studied so that certain implications can be drawn for better research-extension linkages. It is in this context that the present study was taken up with the following objectives:

1. To find out the linkage system maintained by the Agricultural University scientists with the farmers and extension personnel of arid western plain of Rajasthan.
2. To find out the linkage system maintained by the extension personnel with the farmers.
3. To suggest some strategies to be followed for better research-extension linkages.

METHODOLOGY

The study was conducted in the Arid Western Plain of Rajasthan which constituted the whole of Barmer district and Phalodi, Shergarh, Osian and Jodhpur tehsils of Jodhpur district. All the scientists of Agricultural Research Station, Mandore concerned with the generation of the technologies related to crop production and protection i.e. agronomy, plant protection, entomology, soil science and plant breeding who were available on roll at the time of study were contacted. Thus, 14 such scientists constituted the sample. Similarly, a sample of 27 extension personnel were randomly drawn from among the field functionaries and officials of State Department of Agriculture, scientists of Central Arid Zone Research Institute and Krishi Vigyan Kendras operating in the zone who were dealing with transfer of technology work in the region. The data were collected with the help of pre-structured interview schedule by personal interview method. Simple statistics like frequency and percentage were utilized to analyse the collected data.

RESULTS AND DISCUSSION

It was observed that formal research extension

linkage programme was started at this research station from 1980 onwards. It was found that majority (i.e. 10 out of 14) of the scientists under study had 14 to 28 years of job experience and nine out of them were engaged in agricultural research – extension linkage work. Among these, majority (77.77%) of the scientists were engaged in this research – extension linkage work for the last 5 to 15 years, whereas, only 2 of them had more than 15 years of experience of technology transfer work.

Linkage System maintained by Scientists with the Farmers and Extension Personnel : Findings contained in Table 1 reveal that the scientists of ARS, Mandore were making varied efforts in order to find out the problems being faced by the extension personnel and farmers, such as official sources, directly from extension scientists/farmers, through joint diagnostic visits, field level workers and Krishi Vigyan Kendra scientists. Majority (64.28%) of them were contacting the extension scientists and going through the official records of the research institute functioning in the zone or State Department of Agriculture or Krishi Vigyan Kendras.

Table 1. Efforts made by the scientists in finding out the problems being faced by the extension personnel and farmers N=14

S.No.	Efforts made by the scientists	N	%
1.	Through official sources	9	64.28
2.	Directly from the extension scientists	9	64.28
3.	From K.V.K. scientists	7	50.00
4.	Directly from farmers	7	50.00
5.	Through field level work	6	42.85
6.	By joint diagnostic visits	6	42.85

It was revealed through discussion with the scientists of Agricultural Research Station, Mandore that agricultural research extension linkages project was ensured through Training and Visit programme of Department of Agriculture which started in the year 1980. The ARS scientists and extension personnel were linked through Monthly workshop, Joint field visit, Diagnostic team, Cluster meetings, Pre–seasonal meetings, Zonal Research and Extension Advisory Committee meetings and Field days.

It was also disclosed that the scientists of ARS, Mandore were taking several initiatives to establish a good research – extension linkage in the zone. A Plant Protection Clinic was started to examine the infected plant samples received directly as well as those referred by the extension staff and also to suggest suitable control measures. Three scientists from disciplines of Agronomy, Plant Protection and Entomology were involved in this job. Another project on "Mass dissemination of technology" was going on with the efforts of research staff of the arid zone with an objective to contact large number of farmers and persons interested in agricultural development. Contact farmers also linked by radio talks, extension lectures, television coverage, and newspaper coverage and also through exhibition.

It is very much clear from Table 2 that large proportion (92.85%) of the scientists were having liaison with the State Department of Agriculture and the research institutes functioning in the zone viz., Central Arid Zone Research Institute and Defence Laboratory. It was further revealed that the liaison was maintained by majority of the scientists for imparting trainings and attending meetings conducted by State Department of Agriculture or CAZRI, Jodhpur. Also, eight scientists out of 14 under study were involved in delivering expert lectures at K.V.K, State Agriculture Department or CAZRI.

Table 2. Liasion of ARS Scientists with different agencies N = 14

S.No.	Agencies	N	%
1.	Department of Agriculture	13	92.85
2.	Research Institutes	13	92.85
3.	Krishi Vigyan Kendra	9	64.25
4.	Non – government organisations	7	50.00
5.	Soil and Water Conservation Department	7	28.57
6.	Banks, Fertilizers, Seeds and pesticide companies	4	28.57

A village adoption programme was started by A.R.S. scientists in the year 1999 with an objective to enhance the existing crop productivity in adopted villages through demonstrations and timely technical advice to the farmers of village Manaklao which was discontinued due to lack of funds. To impart skill and knowledge oriented trainings to various line department officers, Zonal Training Centre, ARS Mandore in the year 1999 was started but due to vacant posts it is not in progress.

Linkage System maintained by Extension Personnel with the Farmers : In the Arid Western Plain, there are different stakeholders involved in extension work such as scientists of Central Arid Zone Research Institute, Jodhpur through IVLP- TAR (Institute Village Linkage Programme) and Desert Development Project and Transfer of Technology; the extension scientists of Krishi Vigyan Kendra, Jodhpur and Barmer and officials of State Department of Agriculture and Agriculture Supervisors.

Table 3. Distribution of the Extension Personnel on the basis of their experience in transfer of technology work N = 27

S.No.	Experience in years	N	%
1.	Below 11 years	13	48.14
2.	11-20 years	7	25.92
3.	Above 20 years	7	25.92

Table 4. Distribution of the Extension Personnel on the basis of their visit to Farmers' field N = 27

S.No.	Number of visits in a month	N	%
1.	1-5	14	51.85
2.	6-10	2	7.40
3.	11-15	5	18.51
4.	More than 15	6	22.22

The Table 3 depicts that almost half (48.14%) of the respondents had below 11 years of experience in transfer of technology work, whereas one – fourth of respondents (25.92%) had 11-20 years and above 20 years of experience (25.92%) of transfer of technology work. It is clear from Table 4 that more than half (51.85%) of the extension personnel were making 1-5 visits in a month to the farmers' field. Only 6 out of 27 extension personnel were making more than 15 visits in a month. It was observed that the KVK scientists were going to farmers' field once or twice in a month, whereas the agriculture supervisors who were supposed to stay in the village itself were making visits every alternate day. Only one agriculture supervisor in village Manai was very actively working and was staying in the Kisan Salah Kendra.

Table 5. Use of various extension methods by the extension personnel for transfer of technology N = 27

S.No.	Extension methods	N	%
1.	Demonstration on farmers' field	27	100.00
2.	Organisation of field days	26	96.29
3.	Distribution of literature	25	92.59
4.	Counselling through Kisan Salah Kendras	23	85.18
5.	Participation in discussions during farmers' meetings	22	81.48
6.	During field visit	21	77.77
7.	Campaign	20	74.07

It is evident from Table 5 that all the extension personnel reported that they were carrying out demonstrations on farmers' field and majority of them were using various methods for transfer of latest technical know how such as organization of field days, distribution of literature, counseling through Kisan Salah Kendras, participating in discussions during farmers' meetings. More than 70% of the respondents were rendering technical help during field visits and through campaigns. There is provision of carrying out demonstrations on farmers' field in KVKs under Frontline Demonstrations and also demonstrations were carried out by the extension personnel of CAZRI and State Department of Agriculture for testing at the farmers' fields. About half of the respondents, that is 13 out of 27 reported that the Agricultural Research Station Scientists while deciding their research priorities take their advice.

Table 6. Basis of giving advice by the extension personnel to ARS scientists N = 13

S.No.	Basis of giving advice	N	%
1.	On the basis of major crop of the area	13	100.00
2.	On the basis of severity of the problem	13	100.00
3.	On the basis of evaluation of the area	12	92.30
4.	On the basis of constraints faced in adoption of the technology transferred	12	92.30
5.	On the basis of the experience and feedback of local workers	12	92.30
6.	On the basis of personal experience	11	84.61
7.	On the basis of the joint decision of extension officers	11	84.61

It was observed that the advice was taken only from high level officials and not the grass root level extension personnel. The extension personnel had number of basis for giving advice to the ARS scientists as per the constraints faced in adoption, on the basis of feedback received from the farmers, joint decision of extension officers etc. However all the respondents were getting advice according to their major crop and severity of the problem (Table 6). The extension personnel under study reported that only 12 out of 27 respondents were fully getting the feedback of the farmers' problems.

CONCLUSION

It can be concluded that the field level extension personnel were having more contact with the farmers but they were able to provide knowledge up to the limited extent. In case of severe disease infestation, they have to refer the case to the experts of nearby Krishi Vigyan Kendra or Plant Protection Clinic. The experts were not found to have regular contact with the farmers. The higher officers were frequently busy with various meetings of Zonal Research and Extension Advisory Committee, monthly workshops etc. It is clear from the findings that though there was formal mechanism of linkage existing at various levels, the linkage was not so effective in real sense. Only the selected master trainers were involved in direct contact

with farmers through Plant Protection Clinic and the direct linkage of other scientists with the farmers was limited to lectures.

Based on the findings and observations, following suggestions are made for better research extension linkages:

1. Farmer – Scientists' interaction should be organized in the village itself for better linkages. At the same time scientists should get an opportunity to meet the extension personnel in farmers' field.
2. Farmers' problems should reach the scientists well in time either directly or through agriculture supervisors so that they may be solved at the earliest.
3. There should be more specialized staff at the field level for immediate solution to farmers' problems.
4. The presence of agriculture supervisor of the respective area should be made mandatory in any training or meeting organized for farmers.
5. Farmers' fair should be a regular feature in rabi as well as kharif i.e. at an interval of six months to provide the farmers with latest know how.
6. There should be emphasis on quality of demonstrations, mini-kits and training along with quantity.

REFERENCES

1. Agbamu, J.U. (2000). Agricultural research extension linkage systems: an international perspective. Agriculture Research and Extension Network. No. 106, pp. 1-7.
2. Alias, K (1992). Technology transfer for small farmers: The Malaysian experience, *Journal of Rural Reconstruction.* **25** (2) : 36-44.
3. Anonymous (1992). Research Extension Linkages: Decentralised Effort. May – June' 1992, pp. 10-12.
4. Arnon, I (1989). Agricultural Research and Technology Transfer, Elsevier Science Publishers Ltd., New York, pp 841.
5. Benor, D. (1987). Training and visit Extension: Back to basics. In- Agricultural Extension Worldwide. Issues, Practices and Emerging Priorities, ed. W. H. Rivera and Susan, G. Schramm, Croom Helm, London, New York, Sydney, pp. 137-148.
6. Gomez, A.A. (1994). Research – Extension Linkage: An important component of technology transfer and adoption. *Journal of the Asian Farming Systems Association.* **8** : 197-204.

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