

Utilisation of Agricultural Research and Extension Services by Rainfed Farmers

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Introduction

Agricultural research and extension are the two main interventions introduced in the country for transforming the agricultural sector over the last six decades. A massive infrastructure of research and extension, with central Institutions, Agricultural universities, KVKs and the departments of agriculture, has been created across the country to develop and transfer the technologies suitable to the farming communities. However the crucial aspect is the extent of utilization of these technologies and services by the farming community. This is especially important considering the fact that a majority of the farmers operate rainfed farming systems in critical, diversified, risk prone zones. Keeping these aspects in view the present study was undertaken with the following objectives:

1. To understand the extent of contact of the rainfed farmers with agricultural research and extension organizations.
2. To know the frequency and place of contact of farmers with extension officers
3. To study the extent of involvement of farmers in extension activities and utilization of support services.
4. To understand the extent of satisfaction of the rainfed farmers with the services of the department of agriculture.

Methodology

The study was undertaken in 12 districts each drawn from a state representing rainfed area in the country. Four categories of farmers such as marginal, small, medium and large were involved in the study. The data was collected using a pre tested interview schedule from 40 farmers drawn from two villages of a rainfed block in each district. The data has been analyzed by using percentages.

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Findings

The findings relating to the study have been presented below.

1. Farmers' Contact with Research Organizations

Various types of research organizations such as zonal research stations, agricultural research stations, KVKs, ICAR research institutions or their centers are the possible organizations dealing with agricultural research that the farmers can contact at district level.

Table 1 Farmers' Contact with Research Organizations (%)

Sl.No	Districts	Category of farmers				Average
		Marginal	Small	Medium	Large	
1.	Mahboobnagar	10	20	10	50	23.3
2.	Kamrup	29	33	46	48	39.0
3.	Rajkot	20	30	20	20	22.5
4.	Shimla	17	40	33	50	35.0
5.	Gulbarga	0	0	30	20	12.5
6.	Indore	0	36	33	31	25.0
7.	Aurangabad	10	20	40	40	27.5
8.	Bolangir	6	7	60	0	18.3
9.	Bhilwara	56	55	44	45	50.0
10.	Salem	0	0	10	10	5.0
11.	Jhansi	0	0	7	38	11.3
12.	24 Paraganas	15	17	31	30	23.3
	Average	13.6	21.5	30.3	31.8	24.3

It could be observed from table1 that only 24 per cent of the farmers had contact with the research organizations. The contacts also differed according to the category of farmers with marginal farmers being the least contacted as compared to small, medium and large farmers. The contacts of the farmers with the researchers were found to be high in the districts of Bhilwara followed by Kamrup and least in Salem and Jhansi. The data reveals that a large percentage of the farming community had no access to contact with the research organizations and as such is not in a position to access the latest technical know how directly from the scientific community. Similarly, the researchers are also not in a position to get a direct feed back of the farming community for the technological developments they have been undertaking. In this sphere, the lack of intensive contact results in developing technologies that are not utilized by the farming community.

Hence, it is suggested that efforts be made to improve the intensity of contact between the researchers and the farming community through organizing field days, discussion groups, brain storming sessions, diagnostic team visits, on farm research, farmer participatory research and technology development as a strategy for future research activities.

2. Farmers Contact with Extension Officials

The technical advice and support services for development of agriculture are being provided by the field extension officers of the Department of Agriculture who are available at the block and circle levels in various states. These extension officers have the major responsibility to advise and assist farmers in improving their adoption of new technology. Hence contact between farmers and extension officials seems to be crucial for technology transfer.

Table 2. Farmers' Contact with Extension Officials (%)

Sl.No	Districts	Category of farmers				Average
		Marginal	Small	Medium	Large	
1.	Mahboobnagar	30	30	40	60	40.0
2.	Kamrup	77	75	56	50	64.5
3.	Rajkot	50	93	100	100	85.8
4.	Shimla	67	80	89	100	84.0
5.	Gulbarga	0	30	50	70	37.5
6.	Indore	0	0	11	16	6.8
7.	Aurangabad	40	50	50	60	50.0
8.	Bolangir	88	100	100	0	72.0
9.	Bhilwara	100	91	100	82	93.3
10.	Salem	10	20	30	20	20.0
11.	Jhansi	22	44	43	75	46.0
12.	24 Paraganas	69	75	92	100	84.0
	Average	46	57.3	63.4	61.1	56.9

The data in table 2 indicates the contact of farmers in different districts with the extension officials of the Dept. of Agriculture. It could be observed from the table that the highest percentage of contact of farmers was with medium category (63 per cent) followed by large (61 per cent), small (57 per cent) and marginal (46 per cent). The average overall contact was found to be 57 per cent for the rainfed farmers. The data highlights the fact that the extension personnel are not contacting almost 43 per cent of the farmers irrespective of different categories. One of the main reasons for these

results is the non-availability of sufficient number of extension workers at the field level in most of the states. Almost 30 % of the positions below the district level are vacant in quite a few states. Since the only contact of the agricultural department with the farming community personally is with the extension worker at the field level, lack of this facility affects the farming activity in an adverse way.

Looking at the situation in different states, it could be observed that very high percentage of contact was observed among the districts of Bhilwara, Rajkot, Shimla, and 24 Paraganas with more than 80 per cent of the farmers being contacted. The situation was not very conducive in the districts of Indore and Salem. Since most of the rainfed farmers depend mainly upon the field functionaries of the Agriculture Department for their knowledge and guidance, it is necessary that sufficient care is taken to provide full fledged staff at the field level for operationalizing the present day requirements.

3. Frequency of Contact with Extension Officials

Farmers are contacting extension officers at different intervals i.e weekly, fortnightly, monthly, quarterly etc. depending on their needs. The farmer's frequency of contact with extension officials in different states is mentioned below.

The information relating to frequency of contact of the rainfed farmers with the extension officials has been indicated in table 3.

It could be observed from the data that around 40 per cent of the farmers in Mahaboobnagar were found to have fortnightly contacts. These contacts were more for large farmers followed by medium, small and marginal farmers. This was followed by a small percentage of farmers in Indore who had fortnightly contacts. In the districts of Kamrup, Aurangabad around 40 percent farmers were found to have regular weekly contacts followed by majority of the farmers in the district of Bhilwara. Differential patterns of contacts was found among farmers in the districts of Shimla, Gulbarga, Bolangir, Jhansi and 24 Paraganas. The pattern of contact with the extension officials of the agricultural department and the farmers depended upon availability of number of field extension officers in the district. Since, over the years there has been a reduction in the number of field level officials, thereby increasing the additional area for the existing officers, the availability of time for contact with the farmers is reducing as indicated in the results. The need for agricultural development, especially with the present level of technology demands a higher frequency of contact between the farmers and extension workers. Hence, the situation demands provision of extension personnel in adequate numbers to support the farming community.

Table 3. Frequency of Contact with Extension Officials (%)

Sl. No	Districts	Type of visit	Category of farmers				Average
			Marginal	Small	Medium	Large	
1.	Mahboobnagar	Fortnightly	10	30	40	80	40.0
2.	Kamrup	Weekly	46	50	33	50	44.8
3.	Rajkot	Weekly	20	20	30	40	27.5
4.	Shimla	Monthly	33	20	22	0	18.8
		Quarterly	0	7	0	50	14.3
		Half Yearly	17	7	0	0	6.0
5.	Gulbarga	Weekly	0	0	10	10	5.0
		Monthly	0	20	0	30	12.5
		Quarterly	0	10	0	0	2.5
		Half Yearly	0	0	50	30	20.0
6.	Indore	Fortnightly	0	0	11	0	2.8
7.	Aurangabad	Weekly	20	40	50	50	40.0
8.	Bolangir	Weekly	12	0	0	0	3.0
		Fortnightly	38	28	60	0	31.5
		Monthly	6	36	40	0	20.5
		Quarterly	38	0	0	0	9.5
		Half Yearly	0	36	0	0	9.0
9.	Bhilwara	Weekly	100	91	100	82	93.3
10.	Salem	Monthly	10	10	20	10	12.5
11.	Jhansi	Fortnightly	0	22	7	38	16.8
		Monthly	0	11	0	0	2.8
		Quarterly	0	11	14	0	6.3
12.	24 Paraganas	Weekly	8	0	23	0	7.8
		Fortnightly	38	0	0	0	9.5
		Monthly	8	58	38	0	26.0
		Half Yearly	0	25	31	50	26.5

4. Place of Contact with Extension Officials

The farmers are using different places for contacting extension officers in the villages. The percentage of farmers contacting at different places are mentioned below.

Table 4. Place of Contact with Extension Officials (%)

Sl. No	Districts	Place of contact	Category of farmers				Average
			Marginal	Small	Medium	Large	
1.	Mahboobnagar	Panchayat	40	40	40	80	50.0
2.	Kamrup	Field	77	0	0	17	23.5
		Panchayat	8	75	56	33	43.0
3.	Rajkot	Panchayat	50	86	75	50	65.3
		Office	0	7	25	50	20.5
4.	Shimla	Field	0	33	56	0	22.3
		Panchayat	33	13	0	75	30.3
		Office	42	33	33	0	27.0
5.	Gulbarga	Panchayat	0	20	20	40	17.5
		Office	0	10	30	30	17.5
6.	Indore	Field	0	0	6	9	3.8
		Panchayat	0	0	5	7	3.0
7.	Aurangabad	Field	30	20	40	40	32.5
		Panchayat	30	20	20	10	20.0
		Office	10	10	0	10	7.5
8.	Bolangir	Panchayat	88	100	100	0	72.0
9.	Bhilwara	Panchayat	100	91	100	82	93.3
10.	Salem	Panchayat	10	20	30	20	20.0
11.	Jhansi	Panchayat	11	23	14	27	18.75
		Office	11	21	0	38	17.5
12.	24 Paraganas	Panchayat	38	50	54	-	35.5
		Office	15	17	38	75	36.25
		Agril. Market Yard	0	17	0	0	4.3

It is observed from table 4 the most preferred place seems to be the Gram panchayat office. The officials were using this in all the states. One of the reasons for using Gram panchayat as a venue was due to its accessibility to all the categories of farmers as it is a public place and some support services are available for the visiting extension officials in the area. Apart from this, extension officials have also used farmers fields, their own offices and agriculture marketing yards as places of contact with the farmers. Since panchayat has emerged as an important venue within the accessibility of the farmers, it could be helpful to develop an information kiosk in the panchayats for supporting the farmers in the absence of the extension worker.

5. Participation in Extension Activities

The information relating to the participation of farmers in the extension activities of the department of agriculture is presented in table-5.

Table 5. Participation in Extension Activities (%)

Sl. No	Districts	Type of activity	Category of farmers				Average
			Marginal	Small	Medium	Large	
1.	Mahboobnagar	Demonstrations	0	0	10	0	2.5
		Exposure visits	0	0	0	40	10.0
2.	Kamrup	Demonstrations	15	17	22	0	13.5
		Exposure visits	15	17	22	17	17.8
		Trainings	69	58	44	33	51.0
3.	Rajkot	Demonstrations	10	21	15	25	17.8
		Exposure visits	50	21	56	60	46.8
		Trainings	30	40	40	50	40.0
4.	Shimla	Demonstrations	17	53	22	100	48.0
		Trainings	0	27	22	50	24.8
5.	Gulbarga	Demonstrations	0	15	18	15	12.0
		Trainings	10	0	10	20	10.0
6.	Indore	Demonstrations	0	0	11	0	2.8
		Exposure visits	0	18	11	8	9.3
7.	Aurangabad	Demonstrations	30	40	50	50	42.5
		Exposure visits	20	20	30	40	27.5
		Trainings	30	40	40	50	40.0
		Minikits	0	20	20	20	15.0
8.	Bolangir	Demonstrations	75	100	20	0	48.8
		Exposure visits	0	0	20	0	5.0
		Trainings	0	0	40	0	10.0
		Minikits	0	0	20	0	5.0
9.	Bhilwara	Exposure visits	11	0	0	0	2.8
		Minikits	44	55	44	45	47.0
10.	Salem	Demonstrations	0	10	0	0	2.5
		Exposure visits	0	10	20	20	12.5
		Trainings	10	0	10	0	5.0
11.	Jhansi	Demonstrations	0	11	14	0	6.3
		Exposure visits	10	11	0	0	5.5
		Trainings	0	22	21	38	20.3
12.	24 Paraganas	Demonstrations	0	0	46	0	11.5
		Trainings	8	50	62	0	30.0
		Minikits	46	42	38	100	56.5

It could be observed from the above table that the main activities conducted by extension officers across the districts were found to be demonstrations, exposure visits, training and distribution of minikits. Demonstrations were found to be common phenomena in all the states and were found to be a prominent approach in the districts of Shimla and Aurangabad where more than 40 per cent of the farmers took advantage. Farmers' training was taken advantage of in the districts of Kamrup, Rajkot, Aurangabad and 24 Paraganas in a major way. Different categories of farmers have participated in extension activities. However, the involvement of marginal farmers seems to be limited as compared to the others. The reason for comparatively low level of involvement of farmers is due to limited number of activities being undertaken, limited extension personnel organizing the activity, apart from the limited budget allocations. Since, participation in extension activities will help the farmers to improve their own skills and knowledge, it is necessary that greater thrust is provided in creating a large number of extension activities for involvement of all the farmers in one or the other activities.

6. Support Services Utilized

Apart from the technical advise, the department of agriculture also provides support services to the farmers. The information relating to the support services availed by the farmers is presented in table 6.

It could be observed from the data that four types of support services were available to the farmers such as subsidy, inputs, soil testing and water testing. Results indicate that subsidy was availed by 3 to 23 per cent of the farmers in the states. In majority of the states, very few percentage of farmers were found to get the subsidy. This was possibly so since subsidy is provided mainly to certain categories of farmers who can avail this facility. The input support was used by a small number of farmers except in Shimla (34 per cent) and Gulbarga (35 per cent). These districts had specific schemes implemented for support of inputs, especially in the rainfed areas to support the farming community. Soil testing was used by a slightly larger percentage of farmers in different districts whereas water testing was used by a limited number of farmers. Not much of support services were found to be available to the farmers except soil testing and some inputs in specific cases.

Table 6. Support Services Utilized (%)

Sl. No	Districts	Type of service	Category of farmers				Average
			Marginal	Small	Medium	Large	
1.	Mahboobnagar	Subsidy	0	10	20	10	10.0
		Inputs	0	10	20	10	10.0
		Soil testing	10	30	20	60	30.0
2.	Kamrup	Subsidy	31	17	22	23	23.3
		Inputs	8	8	12	0	7.0
		Soil testing	15	22	23	27	21.8
3.	Rajkot	Soil testing	50	93	81	88	78.0
4.	Shimla	Subsidy	33	27	33	0	23.3
		Inputs	33	47	56	0	34.0
		Soil testing	8	0	11	0	4.8
5.	Gulbarga	Inputs	0	20	50	70	35.0
6.	Indore	Soil testing	0	18	33	8	14.8
		Water testing	0	9	0	0	2.3
7.	Aurangabad	Subsidy	10	10	0	10	7.5
		Inputs	20	10	10	10	12.5
		Soil testing	0	0	20	30	12.5
8.	Bolangir	Soil testing	0	29	40	0	17.3
9.	Bhilwara	Inputs	0	9	11	9	7.3
		Soil testing	56	55	44	45	50.0
10.	Salem	Subsidy	10	0	10	0	5.0
11.	Jhansi	Subsidy	0	0	0	12	3.0
		Soil testing	0	11	7	25	10.8
		Watertesting	0	0	0	12	3.0
12.	24 Paraganas	Subsidy	0	0	15	0	3.8
		Inputs	0	17	0	0	4.3
		Soil testing	23	8	54	50	33.8

This was due to the fact that input support mechanism is slowly being reduced to make the extension system professionally oriented. A number of input agencies have come up under the private sector to provide input services to the farmers. However, the services relating to soil testing and water testing are managed mainly in the public domain and hence are being used by the farmers to a certain extent. To build in efficiency of the extension system as a professional organization, it would be helpful to delegate the provision of services for the farmers to the private sector under public private partnership mode.

7. Satisfaction with Services

The information relating to satisfaction of farmers with regard to the services offered by the agriculture department has been presented in table 7.

Table 7. Satisfaction with Services (%)

Sl.No	Districts	Category of farmers				Average
		Marginal	Small	Medium	Large	
1.	Mahboobnagar	20	30	30	40	30.0
2.	Kamrup	57	55	56	50	54.5
3.	Rajkot	50	93	100	100	85.8
4.	Shimla	50	40	50	70	52.5
5.	Gulbarga	0	30	50	70	37.5
6.	Indore	0	0	11	8	4.8
7.	Aurangabad	20	40	40	50	37.5
8.	Bolangir	12	57	40	0	27.3
9.	Bhilwara	100	82	89	80	87.5
10.	Salem	0	10	0	10	5.0
11.	Jhansi	0	44	36	50	32.5
12.	24 Paraganas	46	50	54	0	37.5
	Average	29.6	44.3	46.3	44.0	41.0

It could be observed from the data that farmers from the districts of Bhilwara and Rajkot were found to be satisfied with the services provided to a large extent. This was followed by farmers from Kamrup, Shimla, 24 Paraganas, Gulbarga, Jhansi, and Bolangir where moderate percent of farmers were found to be satisfied. Low levels of satisfaction were found in the districts of Indore and Salem. Since the extension system cannot take the overall responsibility of providing technical assistance and services, majority of the farmers were not found to be satisfied with the limited services they received. Hence, it will be helpful to delegate this responsibility to private sector service providers in the local area.

Conclusion

The study reveals that only 24 per cent of the farmers had contact with the research organizations. It also indicated that medium and large farmers had comparatively greater contact than the other categories. Since the technology development process is mainly oriented with the objective of improving the economic condition of farmers, there is a greater need for direct interaction between the technology developers and the users. Hence it is suggested that the intensity of contact needs to be improved by way of

conducting on farm research, farmer participatory technology development, diagnostic team visits, farmer scientist interfaces etc. Specific action plans should be developed by each ATMA for each season in consultation with relevant stakeholders.

Over all it could be observed that 57 per cent of the farmers had contact with the extension officials. The frequency of contact varied from weekly to half yearly in different states. During the peak agricultural season the frequency of contact needs to increase to solve the emerging problems. This situation demands provision of adequate number of extension personnel at the field level to meet the day-to-day challenges of the farmers.

Extension officials are using gram panchayats as an important contact venue within the accessibility of the farmers; it would be helpful to develop information kiosks in the panchayats for supporting the farmers apart from provision of literature, CDs on technologies etc. at the kiosks.

The involvement of rainfed farmers in extension activities was found to be low. This needs to be improved by increasing the number of extension activities at field level which in turn would help in increasing the knowledge and skills of the rainfed farmers.

Farmers were also found to utilize support services like supply of inputs, subsidy, soil and water testing in a limited way. Since the technical advisory services demand greater time of the extension officials, the support services could be off loaded to private sector service providers under public private partnership mode.

The overall satisfaction of the respondents with regard to the agriculture department services was only 41 per cent. This demands improvement in the number and quality of extension personnel provided at the field level.

References

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