

Role of Electronic Media in the Adoption of Agricultural Technologies by Farmers in the Central Punjab-Pakistan

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ABSTRACT

The agricultural sector dominates the economy of Pakistan, providing food, employment, income and foreign exchange. Thus, the development of country mainly depends on the development of agriculture. Agricultural extension, which is essentially a message delivery system, has a major role to play in agricultural development. The electronic media has a central role in facilitating the exposure of farmers to the latest information. In order to asses the existing role of electronic media in the dissemination of sugarcane technologies, 180 sugarcane growers were taken as study respondents through stratified random sampling technique. Extension services and use of electronic media were found to be the most reliable sources for getting information regarding technologies.

Key Words: Adoption; Electronic media; Sugarcane; Technology

INTRODUCTION

Agricultural extension, which is essentially a message delivery system, has a major role to play in agricultural development. It serves as a source of advice and assistance for farmers to help them improving their production and marketing (Adams, 1988). The task of extension education is accomplished by different extension methods/media, which may come under individual, group and mass contacts. The mass contact, which includes both the electronic and print media, is potentially expected to play an important role in technology transfer. The electronic media has a central role in facilitating the exposure of farmers to a variety of information. Omotayo *et al.* (1997) found that 40 - 50% of those who had access to radio, obtained information on improved farming practices through it. Ladebo *et al.* (1997) concluded that 72.5% of the respondents owned radio sets but the functionality could not be ascertained. Hussain (1993) argued that 66% of the farmers of Pakistan meet their information needs through mass media. In Pakistan, electronic media was introduced in agricultural extension for the first time in 1955 when USAID gifted 38 cinema vans to the Department of Agriculture. These cinema vans were deployed in all important districts of Pakistan. However, these cinema vans did not make much impact on the farming community because only foreign films were shown to the farmers (Hussain, 1993). However, electronic media in the form of radio and television remained in use by the department as important teaching tools. How far these media have been effective in achieving the desired results seems to be an important area to be investigated.

The present study was, therefore, conducted to assess the role of electronic media (radio and television) in

disseminating information about improved agricultural technologies among the farmers of the Punjab province.

MATERIALS AND METHODS

A farm level survey was conducted during November, 2001 in Faisalabad division, which comprised Faisalabad, Jhang and T.T. Singh districts. In two tehsils of the each district, two "markazes" were selected at random. From each 'markaz' of a tehsil, 15 sugarcane growers were selected at random as respondents. Thus, the total number of respondents became 180. A stratified random sampling technique was adopted to achieve a representative sample. The data were collected through farmers' interviews using a well- structured questionnaire. The data thus obtained were analyzed to draw conclusions and make pertinent recommendations. The respondents were classified into categories of small, medium and large farms according to size of their operational land holdings. The farmers operating a farm of less than 12.5 acres were termed as small farmers, those with an operational land holding between 12.5 to 25 acres were placed under medium farmers; whereas, the farmers having more than 25 acres were classified as large farmers. The distribution of the sample farmers is presented in Table I.

Table I. Distribution of the sample farmers

Districts	Number	Percent Farmers	Farm size groups			All
			Small	Medium	Large	
T. T. Singh	60	33.3	30	22	8	60
Faisalabad	60	33.3	31	18	11	60
Jhangh	60	33.3	23	14	23	60
Total	180	100	84	54	42	180

RESULTS AND DISCUSSION

Main sources of information about sugarcane technologies. The data given in the Tables II and III reveal that sources of information about sugarcane technologies of a vast majority of the farmers (91.1%) were fellow farmers followed by extension (26.1%), electronic media (22.8%) and print media (11.1%). Extension and electronic media served as sources of information of 33.3 and 33.3% farmers, respectively in Faisalabad district, which was significantly higher than other districts. The percentage of extension and electronic media in case of large farmers was 31.0 and 26.2%, respectively, which was relatively higher as compared to other farm size groups.

Table II. Main sources of information about sugarcane technologies of the sample farmers by districts

Information source	Districts			All
	T.T.Singh	Faisalabad	Jhang	
Extension	25.0	33.3	20.0	26.1
Research	6.7	5.0	5.0	5.6
Fellow farmers	96.7	80.0	96.7	91.1
Electronic media	15.0	33.3	20.0	22.8
Print media	6.7	15.0	11.7	11.1
Pesticides dealers	1.7	16.7	6.7	8.3
Staff of sugar mills	13.3	5.0	16.7	11.7

Table III. Main sources of information about sugarcane technologies of the sample farmers by farm size

Information source	Farm size groups			All
	Small	Medium	Large	
Extension	22.6	27.8	31.0	26.1
Research	2.4	9.3	7.0	5.6
Fellow farmers	95.2	87.0	88.1	91.1
Electronic media	21.4	22.2	26.2	22.8
Print media	8.3	14.8	11.9	11.1
Pesticides dealers	6.0	11.1	9.5	8.3
Staff of sugar mills	6.0	13.0	21.4	11.7

General information about electronic media

Radio and television ownership. Tables IV and V reveal that majority of the farmers (75.0%) had their own radio sets in Faisalabad district as compared to the other two districts. Large farmers (76.2%) owned radio sets. The proportion of farmers (76.7%) in Faisalabad district was higher for ownership of television as compared to other districts while 78.6% large farmers owned television sets. The majority of farmers (71.7%) in Faisalabad district showed interest in listening to radio programs. Large farmers (73.8%) were interested in listening to radio programs as compared to other farm size groups. Similarly, 73.3% farmers of Faisalabad district watched television programs while 76.2% large farmers watched the programs.

Listening and watching agricultural programs on radio and television. The proportion of farmers (61.7%) of Faisalabad district listening the agricultural programs on radio was relatively high as compared to other districts, while 66.7% large farmers listened agricultural programs on radio. The majority of farmers (83.5%) could

not remember the names of agricultural programs broadcast on radio. The proportion of farmers of Jhang district was relatively higher in listening the “Zari” program on radio as compared to other districts. A few farmers listened to the “Sona Chandi” on radio among the sampled farmers.

A notable proportion of farmers of Faisalabad district (66.7%) watched the agricultural programs on television. More large farmers (69%) watched the agricultural programs on television as compared to other farm size groups. The majority of farmers (above 70%) of the study area could not remember the names of agricultural programs on radio and television. Relatively more farmers of Faisalabad district (36.1%) watched “Kisan Time” agricultural program on television than those of other districts. A very low percentage of farmers watched “Sona Chandi,” and “Harialli” agricultural programs on television in the study area.

Table IV. General information about electronic media of sample farmers by districts

Items	Districts			All
	T.T. Singh	Faisalabad	Jhang	
	Percent farmers			
Own radio	60.0	75.0	66.7	67.2
Own TV	66.7	76.7	58.3	67.2
Listen to radio	56.7	71.7	66.7	65.0
Watch TV	60.0	73.3	58.3	63.9
Listening Agri. Programs on radio	48.3	61.7	58.3	56.1
Watching Agri. Programs on TV	51.7	66.7	51.7	56.7
Frequency of radio listening				
Frequently	17.9	14.3	9.4	13.7
Occasionally	53.6	45.7	28.1	42.1
Rarely	28.6	40.0	62.5	44.2
Frequency of TV watching				
Frequently	20.0	7.7	6.7	11.1
Occasionally	56.7	56.4	30.0	48.5
Rarely	23.3	35.9	63.3	40.4
Agri. programs on radio				
Sona Chandi	6.7	00.0	00.0	1.3
Zari program	13.3	12.5	15.6	13.9
Jhithay tera hal wag day	00.0	3.1	00.0	1.3
Could not remember	80.0	84.4	84.4	83.5
Agri. programs on TV				
Kisan time	18.2	36.1	10.3	23.0
Sona Chandi	9.1	2.8	00.0	3.4
Harialli	00.0	2.8	00.0	1.1
Could not remember	72.7	58.3	89.7	72.4

Awareness of sugarcane production technologies through radio/television. Relatively more farmers of Faisalabad district were aware of sugarcane production technologies (Tables VI and VII; sowing methods, recommended varieties, insect control, fertilizer application, weed control and irrigation methods) broadcast/telecast on radio/television than other districts. In case of farm size groups, the percentage of large farmers who became aware of sugarcane production technologies through listening/watching on radio/television was comparatively high across the farm size groups.

Understanding of farmers about sugarcane production technologies delivered through radio and television in the study area. It has been observed that the proportion of

farmers (70%) of the Faisalabad district was relatively high who fully understood sugarcane production technologies (sowing methods, recommended varieties, insect control, fertilizer application, weed control and irrigation methods) delivered through radio and television as compared to other districts (Table VIII). More medium farmers (48%) fully understood the messages about sugarcane production technologies delivered through radio/television than other farm size groups (Table IX).

Table V. General information about electronic media of sample farmers by farm size groups

Items	Farm size groups			All
	Small	Medium	Large	
	Percent farmers			
Own radio	63.1	66.7	76.2	67.2
Own TV	57.1	74.1	78.6	67.2
Listen to radio	60.7	64.8	73.8	65.0
Watch TV	54.8	68.5	76.2	63.9
Listening Agri. Program on radio	50.0	57.4	66.7	56.1
Watching Agri. Program on TV	47.6	61.1	69.0	56.7
Frequency of radio listening				
Frequently	7.7	20.7	14.8	13.7
Occasionally	41.0	44.8	40.7	42.1
Rarely	51.3	34.5	44.4	44.2
Frequency of TV watching				
Frequently	12.8	9.4	10.7	11.1
Occasionally	43.6	56.3	46.4	48.5
Rarely	43.6	34.4	42.9	40.4
Agri. programs on radio				
Sona Chandi	00.0	4.5	00.0	1.3
Zari program	5.9	18.2	21.7	13.9
Jhithay tera hal wag day	2.9	00.0	00.0	1.3
Could not remember	91.2	77.3	78.3	83.5
Agri. programs on TV				
Kisan time	20.0	28.6	20.8	23.0
Sona Chandi	00.0	7.1	4.2	3.4
Harialli	2.9	00.0	00.0	1.1
Could not remember	77.1	64.3	75.0	72.4

Table VI. Awareness of sugarcane production technologies broadcast/ telecast on radio/television among the farmers of the study area by districts

Items	Districts			All
	T.T. Singh	Faisalabad	Jhang	
	Percent farmers			
Sowing methods	48.3	56.7	53.3	52.19
Recommended Varieties	50.1	68.3	58.3	58.8
Insect control (pyrilla/borer)	50.0	51.6	51.6	51.1
Fertilizer application	51.7	58.3	55.0	55.0
Weed control	48.4	50.0	47.1	46.1
Irrigation methods	50.0	46.7	46.7	47.8

Table VII. Awareness of sugarcane production technologies broadcast/ telecast on radio/television among the farmers of the study area by farm sizes

Items	Farm size groups			All
	Small	Medium	Large	
	Percent farmers			
Sowing methods	48.8	53.8	48.5	52.19
Recommended Varieties	52.4	64.8	64.3	58.8
Insect control (pyrilla/borer)	45.1	53.7	59.6	51.1
Fertilizer application	48.8	59.2	61.19	55.0
Weed control	40.5	48.1	54.8	46.1
Irrigation methods	40.5	50.0	59.5	47.8

Table VIII. Understanding of farmers about sugarcane production technologies delivered through radio/television to the farmers of study area by districts

Items	Districts			All
	T.T. Singh	Faisalabad	Jhang	
	Percent farmers			
Sowing methods				
Fully	41.4	73.5	60.6	59.4
Partially	24.1	14.7	12.1	16.7
Not at all	34.5	11.8	27.3	24.0
Recommended Varieties				
Fully	37.9	80.5	54.5	60.2
Partially	31.0	9.8	18.2	18.4
Not at all	31.0	9.8	27.3	21.4
Insect control (pyrilla/borer)				
Fully	34.5	74.2	48.4	52.7
Partially	31.0	12.9	16.1	19.8
Not at all	34.5	12.9	35.5	27.5
Fertilizer application				
Fully	33.3	80.0	51.6	56.3
Partially	36.7	8.6	12.9	18.8
Not at all	30.0	11.4	35.5	25.0
Weed control				
Fully	32.1	71.4	42.3	48.8
Partially	32.1	10.7	15.4	19.5
Not at all	35.7	17.9	42.3	31.7
Irrigation methods				
Fully	35.7	75.0	42.3	51.2
Partially	28.6	10.7	19.2	19.5
Not at all	35.7	14.3	38.5	29.3

Table IX. Understanding of farmers about sugarcane production technologies delivered through radio/television to the farmers of the area (by farm size groups)

Items	Farm size groups			All
	Small	Medium	Large	
	Percent farmers			
Sowing methods				
Fully	61.0	60.0	56.0	59.4
Partially	9.8	23.3	20.0	16.7
Not at all	29.3	16.7	24	24.0
Recommended varieties				
Fully	59.1	63.6	57.7	60.2
Partially	13.6	21.2	23.1	18.4
Not at all	27.3	15.2	19.2	21.4
Insect control (pyrilla/borer)				
Fully	50.0	55.2	54.2	52.7
Partially	15.8	24.1	20.8	19.8
Not at all	34.2	20.7	25.0	27.5
Fertilizer application				
Fully	51.2	56.7	64.0	56.3
Partially	17.1	23.3	16.0	18.8
Not at all	31.7	20.0	20.0	25.0
Weed control				
Fully	41.2	48.0	60.9	48.8
Partially	17.6	28.0	13.0	19.5
Not at all	41.2	24.0	26.1	31.7
Irrigation methods				
Fully	45.5	53.0	54.2	51.2
Partially	15.2	24.0	20.8	19.5
Not at all	39.4	23.0	25.0	29.3

Suitable time for agricultural programs on radio. Most of the farmers (29.8%) told that the time on radio for agricultural programs was appropriate. About 23% farmers of the study area regarded that 0700 p.m. was the suitable time for agricultural programs and 21.1% farmers

of the study area suggested 0800 p.m. as the suitable time for agricultural programs to listen on radio.

Suitable time for agricultural programs on television. Majority of the farmers of study area told that the existing time for agricultural programs on television was not appropriate. However 33.8% farmers of study area recommended 8.00 PM as the best time for agricultural programs on television.

Adoption of sugarcane production technological messages broadcast/ telecast on radio/television. It has been observed in the study area that the proportion of the farmers of T.T.Singh district was relatively high in adoption of sugarcane production technologies as compared to other districts (Tables X and XI). Whereas, in farm size groups, more large farmers adopted the sugarcane production technologies delivered through radio/television than other farm size groups.

Table X. Adoption of sugarcane production technologies broadcast / telecast on radio/television by sample farmers by districts

Items	Districts			All
	T.T Singh	Faisalabad	Jhang	
Varieties	54.2	40.0	46.9	45.8
Sowing methods	43.5	32.5	27.3	33.3
Fertilizer application	31.8	15.4	9.4	17.2
Plant protection	27.3	12.8	9.7	15.2
Eradication of weed	22.7	17.9	12.9	17.4
Irrigation methods	36.4	20.5	10.3	21.1

Table XI. Adoption of sugarcane technologies broadcast/ telecast on radio/television by sample farmers by farm size

Items	Farm size groups			All
	Small	Medium	Large	
Varieties	39.5	45.2	55.6	45.8
Sowing methods	29.7	31.3	40.7	33.3
Fertilizer application	5.9	21.9	25.9	17.2
Plant protection	8.8	16.1	22.2	15.2
Eradication of weed	8.8	16.1	29.6	17.4
Irrigation methods	11.8	23.3	30.8	21.1

CONCLUSIONS

- The percentage of farmers (22.8%) who used electronic media as source of information for agricultural production technologies was relatively lower than the two other sources i.e. extension (26.1%) and fellow farmers (91.1%).
- It was found that 67% farmers had radio and television sets. However, more than 56% farmers of the study area listened/watched agricultural programs on radio and television, respectively.

- About 14 and 11.1% farmers listened/watched agricultural programs frequently on radio/television, which were comparatively less than the farmers who listened/watched radio/television occasionally for agricultural programs. Majority of farmers 83.5 and 72.4% could not remember the agricultural programs broadcast/watched on radio/television.

- The “Zari program” was listened on radio by 13.9% farmer while 23% farmers watched the “Kisan Time” agricultural programs on television in the study area. “Sona Chandi” and “Jithay teray Hal Wag day” agricultural programs were listened on radio by a few farmers (1.3%) and the agricultural programs “Sona Chandi” and “Harially” were watched on television by a few farmers (3.4 and 1.1%, respectively) in study area.

- Majority of the farmers (above 70%) of the study area could not remember the names of agricultural programs broadcast/telecast on radio/television.

- More than 50% farmers fully understood the messages of sugarcane production technologies broadcast/telecast on radio/television in the study area.

- Most of the farmers were of the view that the time for agricultural programs on radio/television was suitable. But many farmers suggested 8.00-9.00 pm as the suitable time for the agricultural programs on radio/television in the study areas.

- The proportion of the farmers of T.T.Singh district was relatively high in adoption of sugarcane production technologies as compared to other districts. Whereas in farm size groups, more large farmers adopted the sugarcane production technologies among the other farm size groups.

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