

Sources of Information and their Effectiveness in Dissemination of Recommended Technology for Cotton Crop

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Abstract: The research work sought to describe the effectiveness of the sources of information used by Agricultural Extension in dissemination of recommended practices for cotton crop. 220 farmers were randomly drawn to assess the impact of the selected sources such as Radio, TV., Printed Matter, on farmers' decision regarding technology adoption. It was found that Radio, Extension worker, and Contact farmers were very effective in diffusing recommended practices to the farmers. Extension agents perceived lack of proper funding and timely visits of their senior staff members as major constraints in dissemination of information of recommended practices.

Key Words: Cotton-Information Sources- Technology

Introduction

Pakistan is the ancient home of cultivated cotton and ranks fifth in the world for cotton production (PANNA, 1996). The cotton industry and cotton related services play a major role in Pakistan's economy, contributing as much as 63.9% of country's GNP. It is one of the few sectors that have acted as catalysts to further industrial growth in terms of their related industries and by-products. It has developed forward linkage in the form of textile industries, knitwear units, dyeing units, and garment manufacturing units (Attaché Reports, 1996). Pakistan has improved its cotton production (yield per acre) and the quality of its cotton over the past several years (Abdullah, 1979). However, the production fluctuates from year to year. Production levels for ten years are shown in the following table. The production in 1996 was 1532307 MT less than that of 1995. Some of the important problems the crop is facing in the county are: supply of pure seed and fertilizers, selection of varieties, water logging and soil salinity, and infestation of insect pests and diseases.

The problem: Agriculture is the main contributor to Pakistan's economy. It contributes about 25% to GDP, accounts for 56% of total exports, and employs more than 50% of the labor force. In addition, it is considered as a source of labor for industrial sectors, capital for new business, revenue for the federal and provincial governments, and international trade that balances the imports required by other sectors (Mahmood & Walters, 1990). Pakistan possesses many natural resources. It has fertile land with a well-developed irrigation system, ideal and diverse climatic conditions, adequate supply of inputs, an abundant human working force, and a sufficient number of agricultural scientists equipped with modern scientific knowledge in the field of agriculture (PANNA, 1996). However, Pakistan has not yet been able to realize the potential yield of various crops. Consequently, per hectare yield is lower than that of many of the agriculturally advanced countries. Furthermore, the average yield of various crops is much lower than the world average.

It is observed that still most of farmers are not fully aware of the recommended agricultural technology resulting in the low yield per acre. This can be minimized only if recommended technology is effectively transferred from the researchers to the farmers who are

the ultimate users of the innovation. For communication of new ideas and skills to the farmers, radio, TV, interpersonal relationship, relatives, experienced farmers, agricultural extension staff, printed material, and dealers of agricultural inputs play a crucial role in establishing foundation stone of the knowledge base for the farmers in shape of technological package. Knowledge is the most fundamental to the innovation decision process. Knowledge acquisition occurs with awareness exposure and at least a rudimentary understanding of how an innovation functions (Rogers, 1995). However, it is not definitely known that which sources are more effective in transmission of information to the farmers. In addition, it is also important to know the extent of effectiveness on awareness and adoption of recommended technology by the farmers. Therefore, the present study was proposed to determine the effectiveness of selected sources of information in creating awareness among farmers about recommended technology for cotton crop, to identify the sources of information involved in the dissemination of recommended practices for cotton crop, to examine the usefulness and effectiveness of selected sources of information as perceived by the farmers, and to identify the major constraints in dissemination recommended technology for cotton as perceived by Agricultural Extension Agents.

Materials and Methods

This research features a descriptive survey design. Descriptive research is a method that "involves making careful description of educational phenomena" (M. D. Gall, Borg, and J. P. Gall, 1996, p. 374). Leedy (1989) describes descriptive survey as a "normative survey." A detailed questionnaire was developed. The questionnaire was translated into Sindhi (local) language. The information was collected through personal interviews using the structured questionnaire. The data were collected during the year 1997-98 in Taluka Gambat, District Khairpur (Mirs). Two hundred twenty farmers were randomly drawn from the available lists and were specified as the samples. However, due to inaccessibility of the farmers, only 200 farmers were interviewed. This represents a total response rate of 91%. Ninety percent response rate, according to Wunsch (1986), is adequate if the sample size is more than hundred. He defines

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Pakistan Cotton Production 1987 - 1996

Years	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
Prod. (MT)	1468180	1426037	1455748	1637580	2180930	1539960	1367710	1479290	1801889	1532307

Source: FAOSTAT (1996).

Table 1: Sources of Information Regarding Helping Farmers to Know about New Agricultural Practices of Cotton

Sources of Information	Excellent		Good		Fair		Poor		V.Poor	
	No.	%	No.	%	No.	%	No.	%	No.	%
Radio	54	27	80	40	46	23	8	4	12	6
Television	20	10	23	11.5	16	8	109	54.5	32	16
Extension personnel	56	28	26	13	6	3	36	18	74	37
Other Farmers	58	29	92	46	16	8	24	12	10	5
Pesticide/Insecticide agent	48	24	30	15	6	3	94	47	22	11
News Paper	13	6.5	3	1.5	9	4.5	48	24	127	63.5
Magazine	17	8.5	11	5.5	11	5.5	32	16	129	64.5

"adequate" as "a sufficient number have responded to make it possible to use the comparison (p. 33).

The data collected were tabulated and analyzed by using a computer software package SPSS/PC version 8.0. Statistical tests such as mean, percentage, t-test, and one-way ANOVA were employed to allow interpretations of the findings. ANOVA was used to test the null-hypotheses related to the perception of farmers regarding the informational sources. In addition, Duncan's multiple Range Test (DMRT) was used to rank the informational sources.

Results and Conclusions

Sources of Information: Agricultural extension uses different means to reach farmers and inform them about changes in agricultural practices. It employs radio, TV, newspaper, magazines, extension workers. Farmers were asked to rate the informational sources as excellent, good, fair, poor, or very poor (Table 1).

Farmers perceived radio as an excellent (27.0%), good (40.0), and fair (23%) source of information. Among the other sources, other farmers were reported a positive source of information: 29% excellent, 46% good, and 16% fair. A majority of the farmers said that extension personnel were very poor (37%) or poor (18%) source. Only 28% of the farmers said that extension personnel were an excellent source of information. Pesticide/insecticide agents, due to their interaction and personal visits to the farmers, were considered as either excellent source (24.0%) or good source (15.0%), but overall the farmers perceived them poor source of information: poor (47%) and very poor (11%). Perhaps, due to illiteracy, 80.5% of the farmers considered newspapers and magazines as poor or very poor sources of information.

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Use of new practices: For better production, new agricultural practices are disseminated within the farming community. Farmers were asked to provide information whether they use new agricultural practices or not. Responses of the farmers are presented in Table 2. Table 2 reveals that the majority of the farmers were using new agricultural practices. Ninety and five percent of the respondents were using fertilizer, 85% were using pesticide, 95% were using farm tractors and its implements, 95.5% were using improved seeds, and 99% of the respondents were practicing inter-culturing in their crops. Perhaps, because integrated pest management (IPM) is quite new, only 6% of the farmers were using it.

Table 2: Farmers' Response Regarding Use of New Agricultural Practices for Cotton.

Items	Yes		No		Total
	No.	%	No.	%	
Use of Fertilizer	181	90.5	19	9.5	200
Use of Pesticide/insecticide	170	85	30	15	200
Use of IPM practices	12	6	188	94	200
Use of farm tractor	190	95	10	5	200
Use of improved varieties	191	95.5	9	4.5	200
Inter-cutting practice	198	99	2	1	200

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The null hypothesis was that there is no significant difference between the perceived average ranking for different sources of information regarding dissemination of new agricultural practices. To test this hypothesis, one-way Analysis of Variance (ANOVA) was applied. Results are given in Table 3.

Table 3: ANOVA Table for Perceived Sources of Information by Farmers

	S.S	Df	M.S	F	P.Value
Between groups	679.855	7	97.122	75.538	0.000
Within groups	1018.300	792	1.286		
Total	1698.155	799			

Given P. value 0.000 was less than the established P. value 0.05, null hypothesis was rejected and alternative hypothesis that there is a significant difference between the non-contact farmers' perceived average ranking for different sources of information regarding dissemination of new agricultural practices was accepted.

In order to rank the perceived different sources in significant groups, post-hoc test, Duncan's Multiple Range Test (DMRT) was applied. Results are given in Table 4. DMRT shows that other farmers, contact farmers, and radio were highly perceived sources of information and ranked group-I. The perceived average of these three sources of information were not significantly different from each other. However, they were significantly different from other sources of information. Pesticide/Insecticide agents were ranked group-II, extension agents were ranked group-III, and newspapers and magazines were least perceived and ranked group-IV.

Table. 4 Duncan's Multiple Range Test for Ranking the Different Sources of Information

Perceived Performace of Different		Subset for alpha = 0.05			
		X1	X2	X3	X4
Other Farmers	200	3.96			
Contact Farmers	200	3.69			
Radio	200	3.68			
Pesticide/Insecticide agents	200		3.12		
TV	200			2.76	
Extension Workers	200			2.68	
Magazines	200				1.45
Newspapers	200				1.40

1 to 5 scale was used.

Constraints faced by the extension agents: One of the important objectives of the study was to identify the constraints faced by the Extension Agents while disseminating new agricultural practices. Extension Agents were asked to respond to open-ended questions. Most of the Extension Agents said that they do not receive visits from senior personnel. They sometimes do not obtain inputs like fertilizer and seeds at the proper time. They can not get allowances to travel the farmers' field. Transportation and cost of dissemination is not given to them or is insufficient for the dissemination purposes. On the other hand, private agencies such as

Fertilizer and pesticide companies have much greater influence on farmers since the agents of such organizations have better facilities.

Conclusions and Recommendations: Based on the aforesaid results, it was concluded that radio, extension agents, and contact farmers, and other farmers are effective sources of information in disseminating new technology for cotton crop. Farmers are using new practices, however, is still in need of getting more advice from the information agencies such as extension agents, fertilizer and pesticide personnel. It was found that extension agents are facing problems in disseminating new technology for cotton crop. These problems are related with the financial management and timely visits by their seniors. Therefore, a need exists to release appropriate funds and agents will be given proper attention by their seniors so as to enhance the technology transfer process.

References

- Abdullah, M. 1979. Cotton Hand Book of Pakistan. Saifee House, Dr. Ziauddin Ahmed Road, Karachi, Pakistan: Saifee Printers & Publishers.
- Attaché Reports, 1996. From: American Embassy, Islamabad To: USDA/FAS Washington, D.C. Available: <http://www.lums.edu.pk/PAKISTAN/pakecon.htm>.
- Pesticide Action Network North America (PANNA), 1996. Cotton Facts Sheet, Available: <http://www.igc.org/panna/cotton.html>
- Food and Agriculture Organization of the United States of America, 1996. Available: <http://apps.fao.org/lm500/nph>.
- Gall, M.D., W.R. Borg, and J.P. Gall, 1996. Educational Research: An Introduction (6th Edition): USA: Longman Publishers.
- Leedy, P. D. 1989. Practical Research; planning and design: 4th edition. New York, USA: Macmillan Publishing Company.
- Mahmood, A., and F. Walters, 1990. Pakistan Agriculture. A Description of the Agricultural Economy. Islamabad, Pakistan: EAN Project Publication.
- Rogers, E. M. 1995. Diffusion of Innovation. New York, USA. The Free Press
- Wunsch, D.R. 1986. Forum Feature: Action Research in Business Education. Business Education Forum 5: 31-34.